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A CRITICAL CONSIDERATION OF HOUTTUYN'S NEW GENERA AND NEW SPECIES OF PLANTS, 1773–1783

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IN EXAMINING the very extensive literature of systematic botany one notes a number of references to plants named and described by M. Houttuyn, including such species as the common nutmeg, *Myristica fragrans* Houtt., two other species of the same genus, certain other common and widely distributed species in the Indo-Malaysian region, such as *Melochia umbellata* (Houtt.) Stapf, and a fair number of species characteristic of Japan and of South Africa. Even although these binomials are the accepted ones for certain well-known species, very little seems to be known regarding the work of their author. In standard reference works one may note a number of errors in citation, which are largely due to the following facts: Houttuyn's rarely consulted major botanical work is not available in many botanical libraries; it was issued under two entirely different Dutch titles; bibliographically it has been almost wholly and illogically subordinated to certain works of Linnaeus, with which it has little in common except that the Linnaean system of classification was used; shortly after the individual volumes of the original Dutch edition were issued they formed the chief basis of a German publication, the "Vollständiges Pflanzensystem" of Christmann and Panzer, the latter work being illustrated by the same plates, and many authors have confused the latter work with that of Houttuyn; and finally the work was essentially one of a popular rather than of a strictly technical nature.

There has been increasing evidence in recent years, as this or that botanist has resurrected and adopted binomials proposed by Houttuyn between 1773 and 1783, that a considerable number have been over-

looked by all botanists since his publication was issued. A rather critical examination of the fourteen volumes of his "Natuurlyke historie" appertaining to the plant kingdom shows that this is indeed the case, and that in the original work of Houttuyn and in that of Christmann and Panzer approximately 160 validly published new binomials (including the 33 published by error in Panzer's index; see p. 307) appear that have not been included in any published nomenclator or index, out of a total of about 210 that were proposed and published by these authors. Of these about 34 were based on specimens from Japan, 40 on material from the Indo-Malaysian region, 57 on specimens or pre-Linnaean references representing the African flora, chiefly from South Africa, and about 29, largely by bibliographic citation, on the plants of Europe, 14 on species from the eastern United States, about 8 from tropical America, and a few from other regions. In view of this situation it has seemed worth while to make a rather critical examination not only of Houttuyn's original work, but also of that of Christmann and Panzer, since their "Vollständiges Pflanzensystem" was very largely based on Houttuyn's original Dutch work. This has been done not only with a view to listing these new binomials, some accepted by all botanists, many others entirely overlooked, but also to placing them in synonymy or otherwise, as far as their status can be determined with reasonable certainty from the records available, in relation to binomials proposed by their predecessors, contemporaries and successors.

Houttuyn actually named and described, as new, the following genera, all of which, with the exception of *Myrobalanifera* Houtt., have hitherto been properly placed in botanical literature, although some of them were not listed, or actually placed in reference to other generic names, until the present century: *Assa* Houtt. = *Tetracera* Linn., *Basteria* Houtt. (non Mill.) = *Berkleya* Ehrh., *Crinita* Houtt. = *Pavetta* Linn., *Houttuynia* Houtt. = *Ixia* Linn. (not *Acidanthera* Hochst. to which it is currently reduced), *Myrobalanifera* Houtt. = *Terminalia* Linn., *Pallasia* Houtt. = *Calodendrum* Thunb. (1782), *Reynoutria* Houtt. = *Polygonum* Linn. (*Pleuropterus* Turcz.), *Renealmia* Houtt. = *Villarsia* Vent., *Truellum* Houtt. = *Polygonum* Linn. (*Chylocalyx* Hassk., *Echinocaulon* Spach), and *Visenia* Houtt. = *Melochia* Linn.

The task of collating the two works and determining what binomials were originally proposed as new therein has not been an easy one. Houttuyn's work, because of arrangement and typography and because no comprehensive index was prepared, is rather difficult to consult. Assuming, as proves to be the case, that the arrangement of genera and species was essentially that of the twelfth edition of Linnaeus' "Systema

naturae" (1767), each entry in Houttuyn has not only been checked against those in Christmann and Panzer, but also against the entries in Linnaeus' work mentioned above, and Murray's edition 13 (1774) of Linnaeus' "Systema vegetabilium" which in turn was a revision of that part of edition 12 of the "Systema naturae" appertaining to the plant kingdom. Where binomials were noted that did not appear in these works, slips were prepared that were later checked on "Index Kewensis" and other standard publications. A serious attempt was made to locate all new binomials in all groups of plants, whether such binomials had been recognized by Houttuyn's and by Christmann and Panzer's contemporaries and successors or not. The results of this study are embodied in the present paper.

Some of the difficulties encountered are due to the fact that Houttuyn did not consistently indicate his new names as such, and where Christmann and Panzer, for one reason or another in accepting Houttuyn's new species, which they did not always do, changed the specific names or interpolated additional species from one source or another, they did not indicate their new names as such. Houttuyn's normal procedure was to drop a footnote from each species to include the pre-Linnaean and Linnaean references, if it were a Linnaean species, and if it were a new one, to provide a short Latin diagnosis followed by the conventional *mihi* or by an abbreviation of his name. He was, however, far from consistent and a considerable number of his new binomials are not indicated as such and in many cases Latin diagnoses are lacking, although cursory Dutch descriptions were provided. In several cases where he indicated certain binomials as new by the addition of the conventional *mihi* or by an abbreviation of his name, these were not actually new names because he merely accepted previously published binomials of other authors and furthermore gave the literature citations to the original places of publication. *Fucus corneus*, Nat. Hist. II. **14:** 316. *t. 101. f. 2.* 1783, *F. capillaceus* l. c., and *Byssus penicillum* l. c. are indicated by Houttuyn as new by the addition of *mihi* following the short Latin diagnoses, and these binomials are credited by Panzer, Pflanzensyst. **13**(1)**:** 337. *t. 101. f. 3.* 1787 to Houttuyn. They are the earlier *Fucus corneus* Gmel. Hist. Fuc. 144. *t. 14. f. 3.* 1768, *F. capillaceus* Gmel. op. cit. 146. *t. 15. f. 1,* and *Byssus penicillum* Scop. Diss. Pl. Subter. (Diss. Sci. Nat.) 91. *t. 2.* 1772, as both Houttuyn and Panzer give the literature citations to the earlier binomials of Gmelin and Scopoli. *Aletris bifolia* Burm. f. (1768), Houttuyn, Nat. Hist. II. **12:** 408. 1780, Panzer, Pflanzensyst. **11:** 480. 1784; *Rheedia lateriflora* Linn. (1753), Houttuyn, op. cit. II. **3:** 2. 1774, Christmann, op. cit. **2:** 4. 177, and

Phalangium ramosum* Burm. f. Prodr. Fl. Cap. 3. 1768, Houttuyn, op. cit. II. **12: 115. 1780, Panzer, op. cit. **11:** 128. 1784, are exactly similar cases. The "Index Kewensis" entry of the latter is *Phalangium ramosum* "Houtt. Handleid. xii. 114; Poir. Encycl. v. 250," but all that Houttuyn did was to accept the much earlier, but hitherto overlooked, binomial of Burman f.

In a somewhat different category are a number of binomials accredited to Houttuyn in current literature, which he certainly did not propose as new, but merely misapplied or misinterpreted binomials of earlier authors. Thus *Tarchonanthus camphoratus* Linn., as far as Houttuyn is concerned, Nat. Hist. II. **6:** 34. 1776, Christm. Pflanzensyst. **4:** 344. 1779, is strictly the Linnaean species, yet *Tarchonanthus camphoratus* Houtt. appears in botanical literature, the "Index Kewensis" entry being Houtt. ex DC. Prodr. **5:** 430. 1836. De Candolle cites a Houttuyn specimen as being in the Delessert Herbarium, and this specimen does not represent the Linnaean species but is *Brachylaena elliptica* (Thunb.) Less. Further examples are discussed under *Wisteria floribunda* DC.; *Pueraria Thunbergiana* Benth., *Satyrium coriifolium* Sw., and *Microlepia strigosa* Presl in the following paper. No attempt has been made to locate the numerous entries of this type in systematic literature; in general they should be cited, if cited at all, as *Polypodium cristatum* sensu Houtt., non Linn., *Dolichos trilobus* sensu Houtt., non Linn., etc. for Houttuyn certainly did not propose such binomials as new ones.

At the present time, and for the past hundred years or so for that matter, the very extensive and rather well illustrated works of Houttuyn and of Christmann and Panzer are little known and less consulted. In preparing his edition of the "Species plantarum" (1797–1821) Willdenow accepted a considerable number of the new species proposed by Houttuyn, reducing others to synonymy. He took his data, however, from Christmann and Panzer's work, not from Houttuyn's original. For one reason or another he did not account for all the new names proposed by Houttuyn in synonymy or otherwise, actually overlooking more than he accounted for or reduced. It seems to be reasonably clear that no botanist or bibliographer has made a really searching examination of the two works with a view to recording the new binomials, much less attempting to place them in relation to those proposed by other botanists. Steudel, in compiling his "Nomenclator botanicus," seems to have been

*Binomials indicated by an asterisk in this paper represent those that, while validly published at the places indicated, chiefly in Houttuyn's "Natuurlyke historie" and in Christmann and Panzer's "Pflanzensystem," do not appear in "Index Kewensis" and its supplements published to date, or in standard reference works appertaining to the cellular and vascular cryptogams, or if they do appear therein there are serious errors in the citations.

content with recording those Houttuyn binomials that were accepted by Willdenow and his contemporaries and immediate successors, for he did not even include many of the binomials listed in the comprehensive alphabetic index that forms volume 14 of Christmann and Panzer's work. The compilers of "Index Kewensis" apparently placed too much dependence on Steudel's work, for the present study shows that there are over 150 binomials in the Houttuyn and Christmann and Panzer volumes that do not appear in that standard work nor in any of the supplements published to date. Within the present century some of the Japanese botanists, (Makino, Koidzumi, Masamune and others) have accepted certain of the Houttuyn binomials originally based on Japanese specimens and in 1926 Danser* elucidated the status of two overlooked or at least not placed genera proposed by Houttuyn, *Reynoutria* and *Truellum*.

It is probable that the very inconspicuous entries regarding these works in Pritzel's "Thesaurus" have helped to maintain their obscurity. In the first edition of that work in 1851 Pritzel included Houttuyn's work as an independent item (no. 4730) giving its full title and the number of pages in each volume; yet the equally important work of Christmann and Panzer was not granted an independent entry but appears with its full title and bibliographic detail subordinated to entry no. 6010, Linnaeus' "Systema plantarum," as a German edition of that work, *germanice*. In the standard second edition of Pritzel's work (1872), Houttuyn's work is subordinated to Linnaeus' "Systema naturae" (item 5405) in a four line entry as a Dutch edition of that work, *hollandice*, without even mention of its author's name; while that of Christmann and Panzer remains subordinated to item 5431, Linnaeus' "Systema plantarum," as in the first edition, *germanice*. The only place in this edition of Pritzel's work in which Houttuyn's name appears in reference to "Natuurlyke historie" is in the Christmann and Panzer title "nach Anleitung des holländischen *Houttuyn*'schen Werkes übersetzt," while Houttuyn's "Handleiding" is not even mentioned! Other evidence of the relative obscurity of both works is that Rehder† overlooked these extensive publications of Houttuyn and of Christmann and Panzer entirely in compiling the very exhaustive "Bradley bibliography," while Schindler‡ in 1928, in his critical examination of the post-Linnaean con-

*Danser, B. H. Die systematische Stellung der Houttuyn'schen Gattungen Reynoutria und Truellum. Bull. Jard. Bot. Buitenz. III. **8**: 25-31. *f. 1-2*. 1926.

†Rehder, A. The Bradley bibliography. A guide to the literature of the woody plants of the world published before the beginning of the twentieth century. Publications of the Arnold Arboretum No. 3. **1**: i-xii. 1-566. 1911; **2**: i-vi. 1-926. 1912; **3**: i-x. 1-806. 1915; **4**: i-xii. 1-589. 1914; **5**: i-xxxii. 1-1008. 1918.

‡Schindler, A. K. Die Desmodiinen in der botanischen Literatur nach Linné. Repert. Sp. Nov. Beih. **49**: 1-371. 1928.

siderations of the species of *Desmodium* and allied genera, also overlooked both works, although at least one new binomial was involved in the group in which he was especially interested.

Probably another reason why little attention has been given to these works in the past century or so is their popular rather than scientific nature. Both Houttuyn and Christmann and Panzer attempted to popularize Linnaeus' work by publishing in Dutch and in German what had been previously available in printed form only in the then universally used Latin of the professional botanists. It is clear, however, that at the time of its publication Houttuyn's work must have attracted considerable attention for the 14 volumes of the "Natuurlyke historie" appertaining to plants were immediately reissued under another title, "Handleiding tot de plant- en kruidkunde" (see p. 304), and soon after issue the individual volumes were made the essential basis of the German work of Christmann and Panzer, the "Pflanzensystem" (1777–1788), and Müller translated the volumes appertaining to the animal kingdom into German (1774–76) (see p. 305). These "popular" editions were the precursors of more or less similar works in English and in French.

In both works the general sequence of species follows edition 12 of Linnaeus' "Systema naturae" (1767) and Murray's edition 13 of Linnaeus' "Systema vegetabilium" (1774), but other than in the arrangement and in the binomials there is little in common between Houttuyn's greatly amplified work and the model, as to arrangement and nomenclature, on which it was based. For all practical purposes it is an independent work and bibliographically it should be so treated. What Houttuyn did was to amplify the 753 pages of that part of the Linnaean work appertaining to plants into 14 volumes containing somewhat over 8600 pages of text, supplemented by 105 distinctly good copper plates on which about 275 species of plants were delineated. Christmann and Panzer's "Vollständiges Pflanzensystem" should be similarly treated from a bibliographic point of view.

Pertinent to the above observation is the following quotation from the British Museum (Natural History) library catalogue **3:** 1128. 1910: "Among the works professing to be further editions of the 'Systema Naturae' but which have nothing in common therewith, save that the Linnean classification is adopted in them are: — M. Houttuyn's 'Natuurlyke Historie' — 1761–85; P. L. S. Müller's 'Des Ritters C. von Linné' — Vollständiges Natursystem — 1773–76; and P. Kostlin's badly printed *précis* of Müller—1781–82." To this list I would add the work of Christmann and Panzer as it has no more in common with the "Systema naturae," "Systema plantarum" or the "Systema vegetabilium" than

has that part of Houttuyn's work (Deel II) on which it was largely based.

In his "Thesaurus" ed. 1 (1851) under Linnaeus' "Systema naturae" (item 5978) Pritzel includes an eight line entry for P. L. S. Müller's six volume and supplement work entitled "Des Ritter's *C. von Linné* vollständiges Natursystem —" (1773–76). Thinking that perhaps this might contain further overlooked binomials, the set in the Arnold Arboretum library which conforms in all respects to Pritzel's entry was examined. The entire work is devoted solely to zoölogy. In the second edition of his "Thesaurus" (1872) Pritzel gives the same reference in abbreviated form, indicating, however, eleven volumes and an atlas of 195 colored plates issued in 1773–1800; this I have not seen, and so do not know whether or not it contains the parts on botany.

Martinus Houttuyn was born at Hoorn, the Netherlands, in 1720, taking his doctor's degree at Leyden University in 1749, his thesis being "Dissertatio spasmologica spasmorum theoriam exhibens." Dr. C. A. Backer informs me that in the standard Dutch biographical works he has been confused with his namesake Maarten (Latin: Martinus) Houttuyn who practised medicine at Hoorn. The Martinus Houttuyn with whom we are concerned was also born at Hoorn, but established himself in Amsterdam where he died April 27, 1798. He seems never to have occupied any official position and not to have practised medicine, but devoted his entire energies to natural history, becoming a very prolific author.

It seems to be clear, from one of the titles accredited to him, that he, Houttuyn, maintained some kind of a natural history museum. He may well have been a dealer in natural history specimens as indicated from the following passage quoted from Rees "Cyclopedia" **18**(1811): "HOUTTUYNIA, in Botany, received its name in compliment to Dr. Houttuyn, of Amsterdam, a collector and merchant of natural curiosities, one of the people who subscribed towards the expense of sending Thunberg to Japan, by which he enriched both his collections and his purse, in the true spirit of a Dutch virtuoso and patron." This is, in a way, confirmed by the fact that the Japanese plants and at least some of those from the Cape of Good Hope that he described in his "Natuurlyke historie" were received from Thunberg, and largely, at least, under the binomials assigned to them by Thunberg. In a number of cases he published the Thunbergian binomials previous to the issue of Thunberg's "Flora Japonica" in 1784.

He was elected a member of the "Zeeuwsch genootschap van kunsten en wetenschappen" (Zealand society of arts and sciences) July 28, 1775, and was also a member of the "Hollandsche maatschappij der weten-

schappen" (Netherlands society of science). He published a number of papers on various phases of natural history (see p. 229). His most extensive work, and that by which he is best known, the "Natuurlyke historie" is in many respects a remarkable publication, although it is now little known and less consulted. In it he assembled an enormous mass of data, but essentially his work seems to have been more that of a compiler, and as a popularizer of natural science, than as an originator.

His major work was published by his father, Franz Houttuyn, a bookseller or publisher in Amsterdam. In 1765 Franz Houttuyn apparently died, for in 1766, with the appearance of the "Erste deels, negende stuk," i.e. I. 9, the publishers became the "Erven van F. Houttuyn" (the heirs of F. Houttuyn), and 1784, with the "Derde deels, vierde stuk," i.e. III. 4, J. van den Burgh en Zoon in Amsterdam.

Houttuyn's name is perpetuated in botany by the genus *Houttuynia* (Saururaceae) named by Thunberg in 1784 as *Houtuynia*. Slight variant spellings are *Houtouynia* Pers. (1797), *Houttouynia* Batsch (1802), and *Hottuynia* Cramer (1803). Because of the earlier homonym *Houttuynia* Houtt. (1780) of the Iridaceae, Thunberg's generic name should be conserved for otherwise, being a preoccupied name, some botanists would unhesitatingly accept *Polypara* Lour. (1790) to designate this saururaceous genus. *Houttuynia* Houtt. (1780) has been universally interpreted as a synonym of *Acidanthera* Hochst. (1844), but the type and sole species, *H. capensis* Houtt., proves to be an *Ixia;* accordingly *Houttuynia* Houtt. becomes a synonym of *Ixia* Linnaeus (1753). The generic name *Hovttinia* Necker (1790) (*Houttinia* Steud. 1841) = *Calla* Linn.

For an individual who published as extensively as did Houttuyn, it is rather curious to note how relatively little his extensive works are consulted today. His major taxonomic work, the "Natuurlyke historie" is, of course, long since outmoded. Most of the essential taxonomic data included therein, except those items that originated with him and which have hitherto been overlooked, have been much more easily accessible to professional botanists in other standard works; and if Houttuyn's contemporaries and successors for one reason or another ignored or overlooked genera and species that he named and described, this was of little consequence to the botanists of the nineteenth century who worked under rules rather different from those obtaining today.

The following Houttuyn bibliography has been compiled to give some graphic idea of his contributions in the publication field, and to place on record in a medium available in the larger botanical libraries of the world an accessible record of these. Those titles in quotations

have not been actually examined by me, but were taken from A. J. van der AA "Biographische woordenboek der Nederlanden" 8(2): (1867), who there gives several other references to his sources of information regarding Houttuyn and his work.

Houttuyn, M. "Spasmologia spasmorum theoriam exhibens." 1749?

——— "Handleiding tot de chirurgie of heelkonst, volgens het Hoogduitsch van J. Z. Platnerus. Met vele nieuwe aanmerkingen verrijkt door M.H., Amst., 1764."

——— "Nederlandsche Vogelen . . . beschreeven door C. Nozeman . . . en verder na zyn ed. overlyden, door M. Houttuyn." 5 vol. 1770–1829.

See entries under HOUTTUYN, M. and NOZEMAN, C. Cat. Libr. Brit. Mus. (Nat. Hist.) **2**: 881. 1904, **3**: 1455. 1910.

——— Houtkunde. Verzameling van in- en uitlandsche houten— [1–108]. 1–58. [1–6]. *t. 1–106* [1773] –91. Another issue in 1795 with a supplement of six plates.

This is item 4729 in Pritzel's "Thesaurus" ed. 1, 1851, and no. 4291 in edition 2, 1872, where the full title is given. Besides two Dutch titles it also has others in German, English, French, and Latin. Houttuyn's name is appended to the preface, dated Amsterdam, Sept. 12, 1791. It was published by J. C. Sepp. A German edition, with 48 plates, was issued in Nürnberg by Seeligmann, 1773-78.

——— Natuurlyke historie of uitvoerige beschryving der dieren, planten en mineraalen, volgens het samenstel van den Heer Linnaeus, met naauwkerige afbeeldingen 1761–85.

For bibliographic details see p. 302.

——— "Handleiding tot de plant- en kruidkunde benevens eene uitvoerige beschrijving der boomen, planten, heesters, kruiden, varens, mossen, bol- en grasplanten, volgens het zamenstel van C. Linnaeus. Nieuwe uitgave." **1** (1773, or ? 1774)–**14** (1783).

This is a reprint of the fourteen volumes forming "Deel II" of the "Natuurlyke historie" with a new title page, otherwise not differing from the original. Most of the "Index Kewensis" and all of the "Index Londinensis" references are to this work. See p. 304.

——— "Het mikroskoop gemakkelijk gemaakt door H. Baker, 3de druk met pl., nevens een aanshangsel betreffende nieuwe waarnemingen, enz., Amst. 1778, 8°."

——— "Vertoog over de veranderlike steenen, oculi mundi genaamd, met afb. t.a.p., 1781, pl. 311."

——— "Beschrijving van eenige Japansche visschen en andere zeeschepselen. t.a.p., 1782, p. 311."

——— Het onderscheidt der salamanderen ven de haagdissen in 't algemeen, en van de gekkoos in 't byzonder, aagetoond. Verh. Zeeuwsch. Genoots. Wetensch. Vlissingen **9**: 305–336. *1 t.* 1782.

——— Beschryving van eenige Oostindische tin-ersten. Op. cit. 337–350. 1782.

——— "Bedenkingen over der sterflijkheit en het getal des volks in Amsterdam, Amst., 1783 8°."

——— "Faujas de Saint Fond, beschrijving der proefnemingen met konstige lugtbollen; uit het Fransch met aanteekeningen verrijkt door M.H., Amst., 1784, 2 d., 8°, pl."

——— Het onderschied der zwarte en witte peper, en afbeelding van 't gewas der staartpeper. Verh. Zeeuwsch. Genoots. Wetensch. Vlissingen **10**: 604–613. *2 t.* 1784.

——— De echte benzoin-boom en kamferboom van Sumatra. Verh. Holland. Maatsch. Wetensch. **21**: *257–287. t. 7–8.* 1784.

——— Beschryving van Malakse tin-erts, en derzelver mynen. Verh. Zeeuwsch. Genoots. Wetensch. Vlissingen **11**: 383–389. 1786.

——— Aanmerkinge over de kaneel, op Ceylon gemaakt, door Cas. Petr. Thunberg, *Med. et Botan. Professor te Upsal;* vertaald en met eenige aanteekeningen vermeerderd. Op. cit. **12**(1): *296–312.* 1786.

——— "Aanmerkinge over de rupsen, die de boomen in het voorjahr zoodanig benadeelen, dat zij in den zomer geheel vrugten bladerloos staan, en over de middelen, die men, tot voorkoming daarvan in 't werk stellen, t.a.p., 1786, D. 1, St. 11, bl. *327.*"

——— "Animalium musaei Houttuyniani index. Amst. 1787."

——— Aanmerkingen over de herfstraaden, of het vliegende spinrag in de lugt. Nieuwe Algem. Vaderl. Let.-Oefening. **3**(*2*): 520–523. 1788.

——— "Bericht aangaande de echte oleum cajupoeti, inzonderheid betreffende derzelver afkomst, en hoe zij onlangs alhier van folia cajupoeti is gestookt. In Hedend. Vad. Letteroef. D. 111, st. 11, bl. 102."

——— Natuurlijke . . . afbeeldingen en beschrijvingen der Spoken . . . door C. Stoll [Continued by M. Houttuyn] *2* vol. [1788] — 1813.

See entries under Houttuyn, M. and Stoll, C. Cat. Libr. Brit. Mus. (Nat. Hist.) **2**: 881. 1904, **5**: 2028. 1915.

——— Aanmerkingen over de bloemen van den nooten-moskat-boom. Verh. Holland. Maatsch. Wetensch. **26**: *211–231. t. 7.* 1789.

Pages 225-230 by E. P. Swagerman under the subtitle: Beschryving der afbeeldingen op de plaat. The species not named; it is *Myristica fragrans* Houtt.

——— "Afbeelding der artseny-gewassen med derzelver Nederduitsche en Latynsche beschryvingen." 6 vol. 1796–1800.

Edited by D. L. Oskamp and J. C. Krauss. The Dutch descriptions are taken from Houttuyn's "Natuurlyke historie." See entries under Houttuyn, M. and Oskamp, D. L., Cat. Libr. Brit. Mus. (Nat. Hist.) **2**: 880. 1904, **3**: 1482. 1910.

Considering the relatively early date at which Houttuyn published his botanical work (1773–83), the number of new binomials that he proposed, and further that about 160 of these, actually and legitimately published by him and by Christmann and Panzer, have been entirely or almost entirely overlooked up to this time, the number of nomenclatural changes resulting from this study are surprisingly few. As the status of the various species has been determined I have merely applied in each

case the rules of the International Code of Botanical Nomenclature. Where changes in previously accepted specific names have been indicated, because of priority, such changes have been made. Most of these substitutions apply to species originally described by Houttuyn on the basis of material received by him from Japan, Ceylon, India, the Malay Archipelago and South Africa, a very few, and these chiefly bibliographic, applying to species from other parts of the world, including several from the northeastern United States.*

I have attempted to account for each new binomial published by Houttuyn and by Christmann and Panzer, and in connection with this task I have adjusted the synonymy where necessary, under the at present generally accepted rules of procedure. I have added such synonyms and citations as seem to me to be desirable to explain the accepted name in each case, normally including references to standard floras or monographic treatises. Binomials that are not included in "Index Kewensis" or in any of its supplements published to date, or in similar works dealing with the names of cryptogamic plants, are indicated by an asterisk; and in some cases where the current entries are erroneous as to the citation, these are similarly indicated.

In previous studies of this kind, that may perhaps be classed as taxonomic-bibliographic for want of a better term, I have repeatedly expressed my attitude† regarding more or less obscure species described by early authors where the actual types were either never prepared as botanical specimens, or if preserved as such, are no longer extant. Wherever the status of such a species can be determined with reasonable certainty from the published record, supplemented by field, library, and herbarium research, they should be accepted, even if such binomials do at times replace currently accepted ones proposed by later authors. All available data and information appertaining to the proper elucidation of this or that species should be used, and the utilization of such items as local names, economic uses, habitats, time of flowering or fruiting, etc., is just as legitimate as is merely the scanning of a usually cursory, often incomplete, and totally inadequate original description. Under all generally accepted rules of nomenclature the printing of a binomial

*Merrill, E. D. On Houttuyn's overlooked binomials for native or introduced plants in eastern North America. Rhodora **40**: 288-293. *t. 495*. 1938 (Contr. Gray Herb. **122**: 288-293. *t. 495*).

†Merrill, E. D. Osbeck's Dagbok öfwer en Ostindsk Resa. Am. Jour. Bot. **3**: 571-588. 1916; An interpretation of Rumphius's herbarium Amboinense. [Philip.] Bur. Sci. Publ. **9**: 1-595. 1917; Species Blancoanae; a critical revision of the Philippine species of plants described by Blanco and by Llanos. [Philip.] Bur. Sci. Publ. **12**: 428. 1918; A review of the new species of plants proposed by N. L. Burman in his Flora indica. Philip. Jour. Sci. **19**: 329-388. 1921; A commentary on Loureiro's Flora Cochinchinensis. Trans. Am. Philos. Soc. II. **24**(2): 1-445. 1935.

accompanied by a description constitutes valid publication. Certain publications such as Gandoger's "Flora Europae" have been outlawed by appropriate action, but no botanist has even suggested that overlooked binomials, in a publication in which many of those published have been listed and accepted, should be ignored. Until we reach that happy or unhappy state when a list of conserved binomials shall have been prepared, discussed, and accepted, or until such time as overlooked binomials, published before a certain date, shall have been outlawed, we shall have to accept them and do the best we can with them. In a work like the one under discussion it may be more difficult for a conservative botanist to accept a considerable number of nomenclatural changes *en bloc* than it would be for him to accept them as they appeared, one at a time, in widely scattered papers of this or that botanist. But in the case of binomials that have remained not even listed in botanical literature since their publication 145 to 155 years ago, until they are at least *listed* they would, for the most part, continue to be overlooked. Accordingly having located a considerable number of hitherto unrecognized names, I have not been content with merely listing them, but have in each case made a serious attempt to determine their status; i.e., whether the names should be accepted under current rules, or placed as synonyms, or left in that most unsatisfactory category of *incertae sedis*.

Houttuyn's "Natuurlyke historie" was published in Amsterdam between the years 1761 and 1785. The work is divided into: "Deel I, 18 stuk, Dieren," 1761–73; "Deel II, 14 stuk, Planten," 1773–83; and "Deel III, 5 stuk, Mineraalen," 1780–85. Deel II was immediately reprinted under another title: "Handleiding tot de plant- en kruidkunde" etc. (see p. 304). The references in this paper are all to Deel II of the original "Natuurlyke historie," consistently cited as II, **1:**, II, **2:** etc. The full title and essential bibliographic data follow:

Houttuyn, M. Natuurlyke historie of uitvoerige beschryving der dieren, planten en mineraalen, volgens het samenstel van den Herr Linnaeus, met naauwkerige afbeeldingen. **1:** [1–18]. 1–500. *t. 1–10.* 1761; **2:** [1–4]. 1–504. *t. 11–21.* 1761; **3:** [1–4]. 1–564. [1–4]. *t. 22–28.* 1762; **4:** [1–6]. 1–452. *t. 29–36.* 1762; **5:** [1–8]. 1–618 [1–8]. *t. 37–49.* 1763; **6:** [1–4]. 1–558. [1–4]. *t. 50–56.* 1764; **7:** [1–4]. 1–446. *t. 57–62.* 1764; **8:** [1–8]. 1–525. [1–67]. *t. 63–70.* 1765; **9:** i–vi. [1–6]. 1–640. *t. 71–76.* 1766; **10:** [1–6]. 1–528. *t. 77–83.* 1766; **11:** [1–8]. 1–750. [1–6]. *t. 84–92.* 1767; **12:** [1–6]. 1–624. *t. 93–98.* 1768; **13:** [1–6]. 1–534. [1–10]. *t. 99–106.* 1769; **14:** [1–4]. 1–530. [1–2]. *t. 107–114.* 1770; **15:** [1–4]. 1–458. *t. 115–119.* 1771; **16:** [1–6]. 1–630.

[1–10]. *t. 120–125*. 1771; **17:** [1–6]. 1–614. *t. 126–138*. 1772; **18:** i–xxv. [1–5]. 1–226 [1–422]. *t. 139–143*. 1773. II. **1:** i–x. [1–10]. 1–438. [1–2]. *t. 1–5*. 1773, De palmboomen; **2:** i–viii. [1–6]. 1–616. [1–2]. *t. 5–11*. 1774, De boomen; **3:** [1–6]. 1–688. [1–12]. *t. 12–17*. 1774, De boomen; **4:** [1–6]. 1–564. *t. 18–23*. 1775, De heesters; **5:** [1–10]. 1–576. *t. 24–29*. 1775, De heesters; **6:** [1–6]. 1–648. [1–12]. *t. 30–37*. 1776, De heesters; **7:** [1–4]. 1–832. *t. 38–44*. 1777, De kruiden; **8:** [1–6]. 1–784. *t. 45–52*. 1777, De kruiden; **9:** [1–6]. 1–760. *t. 53–60*. 1778, De kruiden; **10:** [1–6]. 1–828. *t. 61–69*. 1779, De kruiden; **11:** [1–6]. 1–456. [1–29]. *t. 70–76*. 1779, De kruiden; **12:** [1–6]. 1–558. [1–6]. *t. 77–86*. 1780, De bolplanten; **13:** [1–4]. 1–616. [1–6]. *t. 87–93*. 1782, De grasplanten; **14:** [1–6]. 1–698. [1–14]. *t. 94–105*. 1783, De varens, mossen, enz. III. **1:** i–viii. [1–12]. 1–552. *t. 1–12*. 1780; **2:** [1–10]. 1–700. [1–8]. *t. 13–24*. 1781; **3:** [1–6]. 1–638. [1–4]. *t. 25–34*. 1782; **4:** [1–8]. 1–498. *t. 35–41*. 1784; **5:** [1–6]. 1–360. [1–232]. *t. 42–48*. 1785.

In this single work it will be noted that Houttuyn printed in excess of 21,500 pages of text, including introductory matter and indices, illustrated by 296 copper plates depicting selected animals, plants, and minerals. Deel II, treating the plant kingdom, includes about 8600 pages of text, indices, and introductory matter, illustrated by 105 copper plates depicting about 275 species of plants. In most sets the plates are black and white, but in the set of Deel II in the Arnold Arboretum library, all figures are hand colored. If we compare this with the Linnaean work with which it has very generally been associated, we find that edition 12 of the "Systema naturae" (1766–68) contained but about 2370 printed pages, with three plates, and that Murray's edition 13 of the "Systema vegetabilium" contained but 844 pages, while that part of edition 12 of Linnaeus' "Systema naturae" dealing with plants contains only 753 pages. In the "Na-berig" to the last part (14) of Deel II [1]. 1783, Houttuyn stated that he had included all the species of plants known to the elder Linnaeus, as well as various others that appeared to him to be new, mostly from South Africa, Japan, Ceylon and the East Indies (Malay Archipelago). He suggested the possibility of publishing a general index. This was never issued, so that one has to be content with the generic indices in volumes 2, 3 (to 1, 2, 3), 6 (to 4, 5, 6), 11 (to 7, 8, 9, 10, 11), 12, 13, and 14. The lack of a comprehensive general index makes the work a distinctly difficult one to consult except when referred to through the corresponding parts of Christmann and Panzer's "Pflanzensystem," and the comprehensive index that forms the concluding volume of that work. Unfortunately the latter authors

do not give page references to the entries in the Houttuyn volumes on which their work was largely based.

The fourteen volumes of Houttuyn's "Natuurlyke historie" forming Deel II, treating the plant kingdom, were immediately reissued under the following title:

Houttuyn M. Handleiding tot de plant- en kruidkunde benevens eene uitvoerige beschrijving der boomen, planten, heesters, kruiden, varens, mossen, bol- en grasplanten, volgens het zamenstel van C. Linnaeus. Nieuwe uitgave met 105 platen. Te Amsterdam bij Lodewyk van Es.

This differs from the "Natuurlyke historie" only in the title-pages. Nearly all the entries in "Index Kewensis" are to this issue, abbreviated to "Handleid.," rather than to the original "Natuurlyke historie," and all the entries in "Index Londinensis" (1929–31) to the illustrations are to "Houttuyn, Handl. Pl. & Kruidk.," which is but natural as the "Handleiding" only is available in the Kew library where both indices were prepared. There are possibly some differences in the dates of issue of some of the individual volumes as between the two series. Miss M. L. Green informs me that the dates are pencilled on the title-pages of the Kew set, Volume I, 1774 (but 1773 is printed at the end of the preface); volume 3, 1775; volume 5, 1776; and volume 11, 1780; the corresponding dates on the title pages of the same volumes of the "Natuurlyke historie" are 1773, 1774, 1775, and 1779. In all other volumes of the Kew set the pencilled dates are the same as those in the original "Natuurlyke historie." There is no record at Kew as to the origin of the pencilled dates on the various volumes of the "Handleiding" nor is it known by whom they were written. In the following consideration of Houttuyn's new species I have taken the dates of issue as they are printed on the several volumes of the "Natuurlyke historie." Some bibliographic difficulties have developed in the past because of the standard "Index Kewensis" citations to the "Handleiding" and because Pritzel did not mention this title in either edition of his "Thesaurus." I judge that this reissue is much less common in libraries than is the original "Natuurlyke historie." The only copy I have seen listed in a number of published library catalogues is the set at Kew on which the "Index Kewensis" and "Index Londinensis" entries were based, and this copy is clearly the basis of Jackson's entry in his "Guide to the literature of botany" 16. 1881. The title is listed in Bibl. Contr. Lloyd Library **2:** 585. 1916, but there is no set in that library.

Houttuyn followed the Linnaean precedent of printing his binomials

as marginal entries. For each species it was his normal procedure to print a footnote in which references to contemporary and pre-Linnaean literature were given; and where Latin diagnoses for his new species occur, these also appear as footnotes. In spite of the fact that a very high percentage of all entries are Linnaean binomials, it is often difficult to determine this fact without checking against other published works. While numerous references are given to binomial literature, the works of Linnaeus, Burman f., Thunberg, Bergius, Murray, Forskål, and others, those to pre-Linnaean literature are much more numerous than to post-Linnaean works; and very frequently all references under a Linnaean binomial are to pre-Linnaean publications with none to binomial literature. Occasionally from what proves to be a Linnaean binomial the footnote reference is to a Latin diagnosis devoid of literature references. While all suspicious binomials have been checked it is fully realized that some of the new ones proposed by Houttuyn and by Christmann and Panzer may have been overlooked by me, but it is hoped that most of them have been detected.

The essential bibliographic data regarding Christmann and Panzer's "Pflanzensystem" are given below:

Christmann, G. F. and **Panzer, G. W. F.** Des Ritters Carl von Linné Königlich Schwedischen Leibarztes &c vollständiges Pflanzensystem nach der dreyzehnten* lateinischen Ausgabe und nach Anleitung des holländischen Houttuynischen Werkes übersetzt und mit einer ausführlichen Erklärung ausgefertiget. **1:** 1–798. [1–2]. *t. 1–11 & 5b.* 1777; **2:** [1–6]. 1–548. [1–28]. *t. 12–17 & 12b, 16a, 16b, 16c.* 1777; **3:** [1–2]. 1–683. *t. 18–25 & 19b, 24b.* 1778; **4:** [1–6]. 1–709. [1–65]. *t. 26–37.* 1779; **5:** [1–2]. 1–870. *t. 38–44b & 41b, 42b.* 1779; **6:** [1–6]. 1–696. *t. 45–51 & 50b.* 1780; **7:** [1–2]. 1–548. [1–2]. *t. 51b–57 & 53b, 55b.* 1781; **8:** [1–6]. 1–794. *t. 57b–65 & 57c.* 1782; **9:** [1–6]. 1–630. [1–2]. *t. 66–69 & 66b.* 1783; **10:** [1–6]. 1–381. [1–184]. *t. 70–76.* 1783; **11:** [1–6]. 1–664. [1–16]. *t. 77–86.* 1784; **12:** [1–6]. 1–810. [1–31]. *t. 87–93.* 1785; **13**(1)**:** [1–6]. 1–562. [1–22]. *t. 94–102.* 1786; **13**(2)**:** [1–10]. 1–565. [1–15]. *t. 103–105.* 1787; **14:** [1–4]. 1–614. 1788.

In the work of Christmann and Panzer the sequence of species is essentially that of Houttuyn. To a very large degree their work was based on that of Houttuyn, but it is not an exact translation. Some of Houttuyn's descriptions and discussions are shortened, others amplified, and particularly in the later volumes a considerable number of species were added from other works, notably from Linnaeus f. "Supplementum

*With volume **12**: (1785) this became vierzehnten.

plantarum" (1781), and in volumes 12 and 13, various items from Thunberg's "Flora Japonica" (1784).

The arrangement of data is rather different from that of Houttuyn, the binomials appearing as center heads rather than as marginal entries, followed by brief German diagnoses, with few to many literature references, and then the cursory descriptions, discussions, notes, etc. The illustrations, printed from Houttuyn's plates, follow the same sequence in arrangement, and in the numbering of the plates and figures. Seventeen extra plates were interpolated, these being numbered 5b, 12b, etc., and carry but one species on a plate. They thus added the illustrations of 17 species to Houttuyn's list. None of the Christmann and Panzer illustrations are listed in "Index Londinensis," the total being about 292 species.

Christmann and Panzer did not always accept the Linnaean binomial adopted by Houttuyn where two were available for the same species. *Rumex aegyptius* Linn. Syst. Nat. ed. 10, **2:** 990. 1759 (Houttuyn, II. **8:** 392. 1777) was replaced by *R. aegyptiacus* Linn. Sp. Pl. 335. 1753 (Christmann, **6:** 370. 1780). *Gnaphalium plantagineum* Linn. Syst. Nat. ed. 12, **2:** 545. 1767 (Houttuyn, II. **10:** 602. 1779) was replaced by *G. plantaginifolium* Linn. Sp. Pl. 850. 1753 (Panzer, **9:** 305. 1783). *Euphorbia officinarum* Linn. Sp. Pl. 451. 1753 (Houttuyn, II. **8:** 736. 1777) was replaced by *E. officinalis* Forsk. Fl. Aeg.- Arab. 94. 1776 (Christmann, **7:** 37. 1781). *Chaerophyllum temulum* Linn. Sp. Pl. 258. 1763 (Houttuyn, II. **8:** 179. 1777) was replaced by *C. temulentum* Linn. Fl. Suec. ed. 2, 94. 1755 (Christmann, **8:** 179. 1777). *Campanula rhomboidea* Murr. Syst. Veg. ed. 13, 173. 1774 (Houttuyn, II. **7:** 585. 1779) was replaced by *C. rhomboidalis* Linn. Sp. Pl. 165. 1753 (Christmann, **5:** 578. 1779); and *Tradescantia virginiana* Linn. Sp. Pl. 288. 1753 (Houttuyn, II. **8:** 329. 1777) was replaced by *T. virginica* Linn. Syst. Nat. ed. 10, **2:** 975. 1759 (Christmann, **6:** 311. 1780).

In checking approximately 8800 binomials that appear in the comprehensive general index forming volume 14 of Christmann and Panzer's "Pflanzensystem" on the second edition of Steudel's "Nomenclator botanicus," about 90 binomials were noted in the "Pflanzensystem" volume that were not included in Steudel's work. These are mostly the names of Linnaean species, nearly all of which appear in "Index Kewensis." Perhaps the most curious result of this check was the discovery that thirty-three new binomials, none appearing in "Index Kewensis" nor in Steudel's work, were actually published in Panzer's index. They are merely listed below without further discussion in this paper, for the

reason that most if not all of them were due to errors in transcription. Just what species was intended in each case is clearly indicated by the number preceding each specific name in combination with the page reference.

Aegilops squamosa* Panzer, Pflanzensyst. **14: 6. 1788 = *A. squarrosa* Linn.

**Asclepias rubescens* Panzer, op. cit. 29 = *A. purpurascens* Linn.

**Aspalathus asteroides* Panzer, op. cit. 30 = *A. Astroites* Linn.

**Campanula striata* Panzer, op. cit. 53 = *C. stricta* Linn.

**Carthamus Carduncul*us Panzer, op. cit. 58 = *C. Carduncellus* Linn.

**Centella pilosa* Panzer, op. cit. 63 = *C. villosa* Linn.

**Chrysanthemum indum* Panzer, op. cit. 68 = *C. indicum* Linn.

**Cistus squamosus* Panzer, op. cit. 71 = *C. squamatus* Linn.

**Clitoria Galactica* Panzer, op. cit. 74 = *C. Galactia* Linn.

**Ehretia spinifolia* Panzer, op. cit. 100 = *E. spinosa* Jacq.

**Erigeron carolinum* Panzer, op. cit. 104 = *E. carolinianum* Linn.

**Euphorbia Medusae* Panzer, op. cit. 109 = *E. Caput-Medusae* Linn.

**Globba maritima* Panzer, op. cit. 123 = *Globba marantina* Linn.

**Helianthus rubens* Panzer, op. cit. 131 = *H. atrorubens* Linn.

**Hyacinthus scriptus* Panzer, op. cit. 137 = *H. nonscriptus* Linn.

**Marrubium dictamnus* Panzer, op. cit. 172 = *M. pseudodictamnus* Linn.

**Martynia longifolia* Panzer, op. cit. 172 = *M. longiflora* Linn.

**Ophioxylon serpinum* Panzer, op. cit. 292 = *O. serpentinum* Linn.

**Ophrys nana* Panzer, op. cit. 192 = *O. alata* Linn.

**Orchis Burmannia* Panzer, op. cit. 193 = *O. Burmanniana* Linn.

**Passiflora perforata* Panzer, op. cit. 201 = *P. perfoliata* Linn.

**Polycarpon islandicum* Panzer, op. cit. 214 = *Koenigia islandica* Linn.

**Protea piniflora* Panzer, op. cit. 222 = *P. pinifolia* Linn.

**Queria minor* Panzer, op. cit. 215 = *Lechea minor* Linn.

**Rubus parviflorus* Panzer, op. cit. 235 = *Rubus parvifolius* Linn.

**Ruta Patavia* Panzer, op. cit. 237 = *R. Patavina* Linn.

**Sauvagesia aphylla* Panzer, op. cit. 242 = *Galax aphylla* Linn.

**Solandra depauperata* Panzer, op. cit. 259 = *Hermas depauperata* Linn.

**Solidago aurea* Panzer, op. cit. 260 = *S. Virgaurea* Linn.

**Trigonella Graeca* Panzer, op. cit. 276 = *T. Foenum Graecum* Linn.

**Wachendorfia thyrsifolia* Panzer, op. cit. 288 = *W. thyrsiflora* Linn.

**Xylophylla pinnata* Panzer, op. cit. 289 = *Staphylea pinnata* Linn.
**Xylophylla trifolia* Panzer, l. c. 289 = *Staphylea trifolia* Linn.

Bibliographically and botanically Houttuyn and Christmann and Panzer have received scant recognition in spite of the extent of their published works. Certainly they did not crave publication credit, for as authors their names do not appear on a single title page of the 51 volumes involved (or on the 65 volumes if one wishes to include the "Handleiding" reprint of the "Natuurlyke historie"). There is no indication of authorship of Houttuyn's work, that I have detected, until five years after publication commenced when the preface to I. **9:** vii. July 21, 1766 bears his name. This appears again in I. **18:** xxv. May 20, 1773; II. **1:** x. November 25, 1773; and II. **2:** viii. November 30, 1780. The "Na-berigt" to II. **11:** 432. 1779 is signed by Houttuyn, and at the end of the last volume, III. **5:** 360. 1785, is a short poem followed by his name.

Christmann and Panzer are equally modest, for there is no indication of authorship of their 14 volumes until one scans the "Vorbericht" to **12:** [2], April 17, 1785 which is signed "Dr. Panzer" and the "Vorbericht" to **13**(2)**:** [2]. 1787, which is signed by G. W. F. Panzer, May 1, 1787. He there states: "Diesem ohngeachtet habe mich beeifert, denienigen Beyfall, den dieses Werk bisher erhalten, und den Herr Rath und *D.* Christmann, ausübender Artz zu Urach im Würtembergischen gründete—wenigstens nicht zu vermindern: den die sieben ersten Bände dieses Werkes sind die Arbeit dieses gelehrten Artzes—die sieben letzten aber die meinige—eine Nachricht, die ich, um nicht ungerecht gegen die Bemühungen dieses verdienstvollen Mitarbeiters zu sein, hier nur bekannter zu machen für nöthig erachte." Volume **13**(2) closes the actual text, for volume **14** consists of the indices only, and its "Vorbericht" is signed G. W. F. Panzer, March 31, 1788.

In examining the illustrations one occasionally notes an error in identification. Houttuyn occasionally depicted what he thought might represent a species allied to the Linnaean one discussed, sometimes citing the Linnaean binomial in the explanation of the figures, sometimes not. Thus the illustration under *Acalypha australis* Linn.; Houtt. Nat. Hist. II. **11:** *t. 72. f. 2.* 1779, Panzer, Pflanzensyst. **10:** *t. 72. f. 2.* 1783, represents *Boehmeria longispica* Steud. (*B. japonica* Miq.). It manifestly was not intended to represent *Acalypha australis* Linn., for following the description of the latter Houttuyn gives cursory descriptions of three other plants from Arabia, the West Indies, and Japan; and his illustration was based on the Japanese plant. The description and synonymy

of *Polypodium cristatum* Linn.; Houtt. Nat. Hist. II. **14:** 183. 1783, Panzer, Pflanzensyst. **13**(1)**:** 207. 1786 appertains to the European form = *Dryopteris cristata* (Linn.) A. Gray. The fern illustrated in both works, *t. 99. f. 3,* represents a Japanese species that Houttuyn thought might represent the Linnaean one. The illustration represents *Microlepia strigosa* (Thunb.) Presl; yet *Polypodium cristatum* Houtt. appears as an independently published binomial in Christensen's "Index filicum," with the reference, however, to Panzer's work rather than to the original one of Houttuyn. The Japanese grass illustrated as *Paspalum distichum* Linn.; Houtt. Nat. Hist. II. **13:** *t. 89. f. 4.* 1784, Panzer, Pflanzensyst. **12:** 219. *t. 89. f. 4.* 1785, clearly represents the very different *Eriochloa villosa* Kunth, but the description given by Houttuyn applies to the Linnaean species. Under *Tamus cretica* Linn.; Houtt. Nat. Hist. II. **11:** 357. 1779, Panzer, Pflanzensyst. **10:** 278. 1783, the illustration, *t. 74. f. 1–2,* represents a Japanese plant, not identified with *Tamus cretica* Linn., depicting staminate and pistillate forms of *Dioscorea quinqueloba* Thunb. The description of synonymy of *Carex limosa* Linn.; Houtt. Nat. Hist. II. **13:** 533. 1782, Panzer, Pflanzensyst. **12:** 695. 1785, appertains to the European form, but the Japanese species illustrated, *t. 93. f. 2,* represents a different species of *Carex.*

Besides the rather numerous binomials that Houttuyn originated to represent species that he considered to be previously unnamed and undescribed, and those proposed by Christmann and Panzer, where for one reason or another they changed specific names, a considerable number of minor changes occur in other binomials, largely if not entirely due to typographical errors. Among those noted are: *Allium Ascalonium* Panzer, **11:** 230. 1784 = *Allium ascalonicum* Linn.; *Amaryllis Beliadonna* Houtt. II. **12:** 172. 1780 = *Amaryllis Belladonna* Linn.; *A. sarnicusis* Houtt. II. **12:** 175. 1780 = *A. sarniensis* Linn.; *Atropa Belladenna* Houtt. II. **7:** 655. 1777 = *A. Belladonna* Linn.; *A. meandagora* Christm. **5:** 660. 1779 = *A. Mandragora* Linn.; *Bubon ummiferum* Houtt. II. **8:** 131. 1777 = *B. gummiferum* Linn.; *Cactus Pitahaia* Houtt. II. **5:** 160. 1775 = *C. Pitajaya* Jacq.; *Convolvulus cantrabica* Christm. **5:** 543. 1779 = *C. cantabrica* Linn.; *Dorstenia Drakenia* Houtt. II. **7:** 358. 1777 = *D. Drakena* Linn.; *Erythrina dicta* Christm. **5:** 852. 1779 = *E. picta* Linn.; *Eupatorium Dalen* Houtt. II. **6:** 17. 1776 = *E. Dalea* Linn.; *E. zcilanicum* Houtt. II. **6:** 20. 1776 = *E. zeylanicum* Linn.; *Gentiana saponnaria* Christm. **5:** 852. 1779 = *G. saponaria* Linn.; *Ixia monadelphica* Panzer, **11:** 43. 1784 = *I. monadelphia* Burm. f.; *Knoxia zeylonica* Christm. **5:** 272. 1779 = *K. zeylanica* Linn.; *Lapathum Acetoselia* Houtt. II. **8:** 412. 1777 = *L.*

Acetosella Scop.; *Malva Sherardina* Houtt. II. **10:** 54. 1779 = *M. Sherardiana* Linn.; *Mimosa fernanbucana* Houtt. II. **6:** 449. 1776 = *M. pernambucana* Linn.; **Osmunda adianthifolia* Panzer, **13**(1): 60. 1786 = *O. adiantifolia* Linn.; *Quercus primus* Christm. **2:** 301. 1777 = *Q. Prinos* Linn.; *Rosa sinita* Houtt. II. **5:** 206. 1775 = *R. sinica* Murr.; *Salix myrrtillodes* Christm. **4:** 559. 1779 = *S. myrtilloides* Linn.; *Salvia spina* Christm. **5:** 159. 1779 = *S. spinosa* Linn.; *Scandix Anthrisans* Houtt. II. **8:** 170. 1777 = *S. Anthriscus* Linn.; *Solanum insamum* Christm. **5:** 389. 1779 = *S. insanum* Linn.; *Tremella Nostoch* Panzer, **13**(2): 545. 1787 = *T. Nostoc* Linn.; *Valeriana Calcatripa* Houtt. **7:** 187. 1777 = *V. Calcitrapae* Linn.

One notes, here and there in systematic literature, a very few actual references to Houttuyn herbarium specimens notably in the collections at Leiden, Copenhagen, and Geneva. Most of the specimens actually accredited to Houttuyn, whether in the Rijks Herbarium at Leiden, or in the Burman (Delessert) herbarium at Geneva, prove on examination to bear no data that would indicate Houttuyn plants; some are definitely from Van Royen's herbarium. The only authentic Houttuyn specimen that I have actually seen is *Myristica fragrans* Houtt. in Vahl's herbarium at Copenhagen and even this was originally named *M. aromatica* Sw., and does not bear Houttuyn's binomial; but on the back of the sheet it is inscribed "ded. Dr. Houttuyn." It is of course possible that Van Royen and Burman received some material from Houttuyn but it is just as likely that they named certain specimens that they received from other sources by consulting Houttuyn's work. Yet as Houttuyn dealt in natural history material one might logically expect that both Van Royen and Burman acquired botanical specimens from him. All attempts to locate a Houttuyn herbarium have failed, and the probability is that most of his actual types are no longer extant.

In the course of this study which has been continued at intervals over a period of several years, I have been under obligations to a number of individuals for data and information including Dr. H. Lam, Dr. J. T. Koster, and Dr. S. J. Van Ooststroem of Leiden, Dr. O. Hagerup, Copenhagen, Dr. B. P. G. Hochreutiner and Dr. Charles Baehni, Geneva; Miss M. L. Green and Mr. J. Hutchinson, Kew, Mr. J. E. Dandy, British Museum, and Mr. S. Savage, Linnaean Society, London. Dr. R. H. Compton of Kirstenbosch, Union of South Africa, has supplied me with critical notes on certain of Houttuyn's South African species that I

*This variant apparently commenced with the following entry: *Osmunda adianth.* Linn. Syst. Nat. ed. 10, 2: 1319. 1759. It is repeated in ed. 12, **2:** 685. 1767, and as *Osmunda adianthifolia* in Murray, Syst. Veg. ed. 13, 779. 1774. It is not listed in Christensen's "Index filicum."

could not place to my own satisfaction. The assistance rendered has enabled me to settle a number of problems that otherwise would have had to remain unsolved.

FUCACEAE

Splachnidium Greville

Splachnidium rugosum (Linn.) Grev. Syn. Alg. XXXVI. 1830; Mitch. & Whit. in Murray, Phycol. Mem. **1:** 1–10. *t. 1–3.* 1892; DeToni, Syll. Alg. **3:** 223. 1895.

Ulva rugosa Linn. Mant. **2:** 311. 1771.

Fucus verrucosus* Houtt.* Nat. Hist. II. **14: 309. 1783, non Gmel.

Fucus variolosus* Houtt. op. cit. Aanwyz. Plaat. [4]. 1783; Panzer, Pflanzensyst. **13(1): 369. *t. 101. f. 2.* 1786.

Houttuyn's description was based on a Cape of Good Hope specimen, and his species is manifestly identical with *Splachnidium rugosum* (Linn.) Grev. The species was clearly indicated as new, with no references to earlier literature. The earlier *Fucus verrucosus* Gmel. Hist. Fuc. 136. *t. 14. f. 1.* 1768 is apparently a synonym of *Gracilaria confervoides* (Linn.) Grev. Houttuyn clearly intended to describe his species as *Fucus variolosus* as this is the name he used in the description of the plate and was the one correctly accepted by Panzer; in the text, by error, he used the specific name *verrucosus.* I have found no references in algological literature to Houttuyn's species.

FUNGI

Fomes Fries

Fomes sp. ?

Helvella subterranea* Houtt. Nat. Hist. II. **14: 649. *t. 105. f. 3.* 1783; Panzer, Pflanzensyst. **13**(1): 509. 1786, **13**(2): *t. 105. f. 3.* 1787.

This was clearly indicated as a new species by "mihi" following Houttuyn's description. It was based on a specimen from the Dorothea silver mine, Clausthal, in the Hartz Mountains, Germany. It is perhaps a sterile polyporaceous plant, possibly *Fomes* sp.

Hexagonia Fries

Hexagonia sp.

Peziza limbosa* Houtt. Nat. Hist. II. **14: 659. *t. 105. f. 5.* 1783; Panzer, Pflanzensyst. **13**(1): 521. 1786, **13**(2): *t. 105. f. 5.* 1787.

This was clearly indicated by Houttuyn as a new species, his description being based on a specimen from Ceylon. It is perhaps the same as

*Throughout this paper those binomials preceded by an asterisk indicate those that do not appear in "Index Kewensis" or its supplements published to date; or if they appertain to cryptogamous plants, do not appear in the standard works appertaining to the fungi, mosses, and pteridophytes. In some cases the asterisk has been added where currently accepted citations are radically wrong.

Hexagonia Königii Berk., type also from Ceylon, but which is reduced by some authors to *H. apiaria* Fries, Epicr. Syst. Myc. 497. 1836–38; Sacc. Syll. Fung. **6**: 358. 1888 (*Polyporus apiarius* Pers. in Gaudich. Bot. Frey. Voy. 169. *t. 2. f. 2.* 1826), type from Rawak. In such case Houttuyn's specific name would have priority.

BRYACEAE

Bryum Dillenius

Bryum argenteum Linn. Sp. Pl. 1120. 1753; Panzer, Pflanzensyst. **13**(2): 257. 1787.

Bryum argentatum* Houtt. Nat. Hist. II. **14: 438. 1783.

Houttuyn's slight change in the specific name was doubtless unintentional. *Bryum argentatum* C. Muell. Bot. Jahrb. **5**: 83. 1883, from Ascension Island, apparently needs a new name.

POLYPODIACEAE

Asplenium Linnaeus

Asplenium Trichomanes Linn. Sp. Pl. 1080. 1753; Houtt. Nat. Hist. II. **14**: 130. 1783.

Asplenium trichomanoides* Linn. Syst. Nat. ed. 12, **2: 690. 1867; Panzer, Pflanzensyst. **13**(1): 145. 1786.

Panzer followed Linnaeus, Syst. Nat. ed. 12, **2**: 690: 1767, in adopting the specific name *trichomanoides,* rather than accepting the original spelling of 1753, *Trichomanes.* By error Christensen indicates it in his "Index filicum" as: "*A trichomanoides* Houtt. Pfl. Syst. **13**[1]: 145. 1786." The original author is Linnaeus, not Houttuyn; Christensen's reference is to Panzer's work, not that of Houttuyn.

Cyrtomium Presl

Cyrtomium falcatum (Linn. f.) Presl, Tent. Pterid. 86. 1836.

Polypodium falcatum Linn. f. Suppl. 446. 1781.
Polypodium japonicum Houtt. Nat. Hist. II. **14**: 167. *t. 98. f. 3.* 1783, Panzer, Pflanzensyst. **13**(1): *t. 98. f. 3.* 1786.
Polystichum falcatum Diels in Engl. & Prantl, Nat. Pflanzenfam. I. 4: 194. 1899.

Houttuyn's species, clearly indicated by him as new, was based on a Japanese specimen received from Thunberg. The entry in Christensen's "Index filicum" is correct for both the Houttuyn and the Panzer references.

Cyclophorus Desvaux

Cyclophorus hastatus (Thunb.) C. Chr. Ind. Fil. 199. 1905.

Acrostichum hastatum* Thunb. in Houtt. Nat. Hist. II. **14: 68. *t. 95. f. 2.* 1783; Thunb. Fl. Jap. 331. *t. 34.* 1784; Panzer, Pflanzensyst. **13**(1): 79. *t. 95. f. 2.* 1786.

Christensen gives Thunberg, Fl. Jap. 331. *t. 34.* 1784 as the place of publication of *Acrostichum hastatum* Thunb., but the binomial was actually published one year earlier by Houttuyn.

Didymochlaena Desvaux

Didymochlaena truncatula (Sw.) J. Sm. Jour. Bot. Hook. **4:** 196. 1842.

Aspidium truncatulum Sw. Jour. Bot. Schrad. **1800**(2): 36. 1801.
Adiantum lunulatum Houtt. Nat. Hist. II. **14:** 209. *t. 100. f. 1.* 1783; Panzer, Pflanzensyst. **13**(1): 252. *t. 100. f. 1.* 1786; non Burm. f. 1768.

Houttuyn clearly indicated his species as new, although his specific name was invalidated by the earlier *Adiantum lunulatum* Burm. f. (1768) = *A. philippense* Linn. Christensen's entry in the "Index filicum" is correct for both Houttuyn's and Panzer's references except that in the first there is no citation of the illustration.

Dryopteris Adanson

Dryopteris sophoroides (Thunb.) O. Ktze. Rev. Gen. Pl. 813. 1891.

Polypodium sophoroides Thunb. Trans. Linn. Soc. **2:** 341. 1794.
Polypodium acuminatum* Houtt. Nat. Hist. II. **14: 181. *t. 99. f. 2.* 1783.
Polypodium dichotomum Panzer, Pflanzensyst. **13**(1): 204. *t. 99. f. 2.* 1786; non Thunb. (1784).
Dryopteris acuminata Nakai, Bot. Mag. Tokyo **42:** 217. 1928; Ching, Sinensia **3:** 323. 1933; non Watts (1916).

Polypodium acuminatum Houtt. was clearly indicated as a new species. The entry in Christensen's "Index filicum," by error, is to "Houtt. Pfl. Syst. **13**[1]**:** 204. *t. 99. f. 2.* 1786." *Polypodium dichotomum* Panzer is a new name, not indicated as such, the first entry in Christensen being, by error, to "Houtt. Nat. Hist. **14:** 181. 1783," the second reference to the "Pflanzensyst." being correct. Houttuyn's specimen was from Japan, received by him from Thunberg. Nakai has clearly shown that *Polypodium acuminatum* Houtt. is identical with *P. sophoroides* Thunb., but the specific name selected by Houttuyn is invalid in *Dryopteris.*

Microlepia Presl

Microlepia marginata (Panzer) C. Chr. Ind. Fil. 212. 1905; 427. 1906.

Polypodium marginatum Panzer, Pflanzensyst. **13**(1): 199. 1786.
Polypodium marginale Thunb. ex Murr. Syst. Veg. ed. 14, 937. 1784, Fl. Jap. 337. 1784, non Linn. 1753.

Christensen, "Index filicum" 427. 1906 erroneously cites Houttuyn as the author of *Polypodium marginatum.* Houttuyn did not consider the species but Panzer interpolated it in his "Pflanzensystem" taking his

description from Thunberg's "Flora Japonica," and deliberately proposing a new name *marginatum* because the specific name that Murray and Thunberg used was invalidated in *Polypodium* by the earlier *P. marginale* Linn. = *Dryopteris marginalis* A. Gray.

Microlepia strigosa (Thunb.) Presl, Epim. 95. 1849.

Trichomanes strigosum Thunb. Fl. Jap. 339. 1784.

Polypodium cristatum sensu Houtt. Nat. Hist. II. **14**: 183. *t. 99. f. 3.* 1783; Panzer, Pflanzensyst. **13**(1): 208. *t. 99. f. 3.* 1786, *quoad nota et illus.*; non Linn.

Christensen's entry in his "Index filicum" is to Houttuyn in Panzer's work of 1786. Houttuyn considered the European *Polypodium cristatum* Linn. = *Dryopteris cristata* A. Gray, but following the entry he discussed and illustrated a Japanese plant that he thought might represent the Linnaean species. It is the very different *Microlepia strigosa* (Thunb.) Presl.

Nephrolepis Schott

Nephrolepis acuminata (Houtt.) Kuhn, Ann. Mus. Bot. Lugd-Bat. **4:** 286. 1869.

Ophioglossum acuminatum Houtt. Nat. Hist. II. **14**: 49. *t. 94. f. 3.* 1783; Panzer, Pflanzensyst. **13**(1): 53. *t. 94. f. 3.* 1786.

A characteristic Malaysian species, Houttuyn's type being from Java. The entry in Christensen's "Index filicum" is correct except that the page reference is given as 94, and there is no reference to the plate and figure. This was clearly indicated by Houttuyn as a new species.

Pellaea Link

Pellaea pteroides (L.) Prantl, Bot. Jahrb. **3:** 420. 1882.

Adiantum pteroides Linn. Mant. **1**: 130. 1767; Houtt. Nat. Hist. II. **14**: 218. 1783.

Adiantum pteridioides* Panzer, Pflanzensyst. **13(1): 264. 1786.

Pteris orbiculata Houtt. Nat. Hist. II. **14**: 108. *t. 96. f. 3.* 1783; Panzer, Pflanzensyst. **13**(1): 120. *t. 96. f. 3.* 1786.

The entry for *Pteris orbiculata* Houtt. in Christensen's "Index filicum" is essentially correct except that he did not cite the illustration in the first reference. The reduction is manifestly correct. *Pteris orbiculata* Houtt. was clearly indicated as a new species, his specimen being from South Africa. *Adiantum pteridioides* Panzer was doubtless due to an error in transcribing the Linnaean binomial.

Polypodium Linnaeus

Polypodium trilobum Houtt. Nat. Hist. II. **14:** 148. *t. 98. f. 1.* 1783; Panzer, Pflanzensyst. **13**(1): 166. *t. 98. f. 1.* 1786.

Polypodium incurvatum Blume, Enum. Pl. Jav. 126. 1828, Fl. Jav. Fil. 151. *t. 65.* 1828; v. Ald. v. Ros. Mal. Ferns 663. 1909.

Houttuyn's species is listed by Christensen "Index filicum" as "Houtt. Hist. Nat. **14:**—t—1783, ed. Germ. Pfl. Syst. **13**[1]**:** 166. *t. 98. f. 1.* 1786—Batavia." No reduction was indicated. *Polypodium trilobum* Houtt., indicated by Houttuyn as new, replaces *P. incurvatum* Blume. His type was from Java.

Pteris Linnaeus

Pteris ensiformis Burm. f. Fl. Ind. 230. 1768; Houtt. Nat. Hist. II. **14:** 92. 1783.

Pteris ensifolia* Panzer, Pflanzensyst. **13(1): 106. 1786, non Poir.
Acrostichum trifoliatum* Houtt. Nat. Hist. II. **14: 79. *t. 95. f. 3.* 1783; Panzer, Pflanzensyst. **13**(1): 90. *t. 95. f. 3.* 1786, *in nota et quoad illus.;* non Linn.

Panzer's use of the specific name *ensifolia* was doubtless due to an error in transcription. Houttuyn's illustration of *Acrostichum trifoliatum* was based on a Ceylon specimen, briefly discussed in a note following the entry *Acrostichum trifoliatum* Linn. (= *Trismeria trifoliata* Diels). The entry in Christensen's "Index filicum" is to Panzer's work, not to Houttuyn's original. This is a case where the citation should probably be *sensu* Houtt., non Linn., for Houttuyn did not intend *Acrostichum trifoliatum* as a new binomial.

Quercifilix Copeland

Quercifilix zeilanica (Houtt.) Copel. Philip. Jour. Sci. **37:** 409. 1928, as *zeylanica.*

Ophioglossum zeilanicum Houtt. Nat. Hist. II. **14:** 43. *t. 94. f. 1.* 1783; Panzer, Pflanzensyst. **13**(1): 47. *t. 94. f. 1.* 1786.
Osmunda trifida Jacq. Coll. **3:** 281. *t. 20. f. 3.* 1789.
Acrostichum quercifolium Retz. Obs. **6:** 39. 1791.
Onoclea quercifolia Willd. Schrift. Ak. Erfurt. **1802:** 27. 1802.
Gymnopteris quercifolia Bernh. Schrad. Neu. Jour. Bot. **1**(2): 20. 1806.
Dendroglossa quercifolia Fée, Gen. 80. *t. 7B. f. 3.* 1850–52.
Polybotrya quercifolia Mett. Fil. Lechl. **2:** 12. 1859.
Leptochilus zeylanicus C. Chr. Ind. Fil. 16. 1905, 388. 1906.

The entry in Christensen's "Index filicum" is correct, except that the specific name is spelled *zeylanica.* The species was clearly indicated by Houttuyn as new.

Woodwardia Smith

Woodwardia orientalis Sw. Jour. Bot. Schrad. **1800**(2): 76. 1801.

Blechnum japonicum Houtt. Nat. Hist. II. **14:** 113. *t. 97. f. 1.* 1783, *in nota;* Panzer, Pflanzensyst. **13**(1): 124. *t. 97. f. 1.* 1786; non Linn. f. (1781).

Blechnum japonicum Houtt., not indicated as a new species, except in the description "als een nieuwe soort," was casually published independently of *Blechnum japonicum* Linn. f. Suppl. 445. 1781 = *Woodwardia japonica* (Linn. f.) Sm. *Woodwardia orientalis* Sw. is often placed as a synonym of *W. radicans* Sm.

GLEICHENIACEAE

Gleichenia Smith

Gleichenia glauca (Thunb.) Hook. Sp. Fil. **1:** 4. *t. 3B.* 1844.

Polypodium glaucum* Thunb. in Houtt. Nat. Hist. II. **14: 177. 1783; Thunb. in Murray, Syst. Veg. ed. 14, 938. 1784; Thunb. Fl. Jap. 338. 1784; Panzer, Pflanzensyst. **15**(1): 200. 1786.

I am not certain that the species described by Houttuyn in 1783 as *Polypodium glaucum* is the same as the one described by Thunberg in 1784 under the same name, although Houttuyn's specimen was from Thunberg, and "met den nevensgaanden bynaam gedoopt." Panzer, however, repeats the description of *Polypodium glaucum* Thunb. on p. 239 and that of Houttuyn, with a discussion, on p. 200, crediting the latter binomial to Houttuyn, considering that the fern Thunberg described in Murray, Syst. Veg. ed. 14, 938. 1784, and Thunb. Fl. Jap. 338. 1784 as *Polypodium glaucum* represents a species different from the one Houttuyn described under Thunberg's binomial one year earlier.

Gleichenia linearis (Burm. f.) C. B. Clarke, Trans. Linn. Soc. II. Bot. **1:** 428. 1880.

Polypodium lineare Burm. f. Fl. Ind. 235. *t. 67. f. 2.* 1768.

Polypodium pedatum Houtt. Nat. Hist. II. **14:** 175. 1783; Panzer, Pflanzensyst. **13**(1): 196. 1786.

The entry in Christensen's "Index filicum" is essentially correct, except that he credited both references to Houttuyn; the second one is to Panzer's work. Houttuyn's material was from Japan; he clearly indicated his species as a new one.

OSMUNDACEAE

Osmunda Linnaeus

Osmunda lancea Thunb. in Murr. Syst. Veg. ed. 13, 928. 1784, Fl. Jap. 330. 1784.

Osmunda japonica Houtt. Nat. Hist. II. **14:** 57. *t. 95. f. 1.* 1783; Panzer, Pflanzensyst. **13**(1): 62. *t. 95. f. 1.* 1786, *in nota,* non Thunb. Nova Acta Soc. Sci. Upsal. II. **3:** 209. 1780 (reprint Miscel. Pap. Jap. Pl. Thunb. 23. 1935), Fl. Jap. 330. 1784.

The form Houttuyn described, but did not indicate as a new species, is clearly, as Panzer indicated, the one characterized by Thunberg in

1784 as *O. lancea* Thunb. Christensen, "Index filicum," gives the citation to Panzer's work (erroneously crediting this to Houttuyn), querying: "an etiam in Houtt. Nat. His. **14:** 1783?" The two citations refer to the same species. The entry in the "Index filicum" for **Osmunda japonica* Thunb. should be changed to read Nova Acta Soc. Sci. Upsal. II. **3:** 209. 1780, as Thunberg fortunately published a formal diagnosis of it here four years before it appeared in his "Flora Japonica."

Ophioglossaceae

Botrychium Swartz

Botrychium virginianum (Linn.) Sw. Schrad. Jour. **1800**(*2*): 111. 1801.

Osmunda virginiana Linn. Sp. Pl. 1064. 1753; Houtt. Nat. Hist. II. **14:** 52. 1783.

Osmunda virginica* Linn. Syst. Nat. ed. 12, **2: 685. 1767; Murr. Syst. Veg. ed. 13, 779. 1774; Reichard, Syst. Pl. 379. 1780; Panzer, Pflanzensyst. **13**(1): 57. 1786.

The entry in C. Christensen, "Index filicum," by error, is "Houtt. Pfl. Syst. **13**[1]**:** 57. 1786." The original author was Linnaeus.

Gramineae

Anthephora Schreber

Anthephora hermaphrodita (L.) O. Ktze. Rev. Gen. Pl. **2:** 759. 1891; Hitchc. Man. Gr. West Ind. 98. *f. 58*. 1936.

Tripsacum hermaphroditum Linn. Syst. Nat. ed. 10, **2:** 1261. 1759; Houtt. Nat. Hist. II. **13:** 509. 1782.

Tripsacum hermaphroditicum* Panzer, Pflanzensyst. **12: 655. 1785.

Anthephora elegans Schreb. Beschr. Gräs. **2:** 105. *t. 44*. 1810.

Panzer's slight change in the specific name was probably an inadvertent one.

Bromus Linnaeus

Bromus ciliatus Linn. Sp. Pl. 76. 1753; Houtt. Nat. Hist. II. **13:** 313. 1782; Britt. & Brown, Illus. Fl. N. States Canada ed. *2*, **1:** 276. *f. 666*. 1913.

Bromus ciliaris* Panzer, Pflanzensyst. **12: 429. 1785.

The publication of the specific name *ciliaris* by Panzer was undoubtedly due to an error in transcription on his part.

Chloris Swartz

Chloris capensis (Houtt.) comb. nov.

Andropogon capense* Houtt. Nat. Hist. II. **13: Aanwyz. Plaat. [2]. *t. 103*.

f. 3. 1782; Panzer, Pflanzensyst. **12:** Verzeich. Kupfertaf. [4]. *t. 93. f. 3.* 1785.

Andropogon muticus sensu Houtt. op. cit. 579, Panzer, op. cit. 758, non Linn.

Chloris petraea Thunb. Prodr. Pl. Cap. 20. 1794; Stapf in Thiselton-Dyer, Fl. Cap. **7:** 643. 1900, *cum. syn.*

Stapf cites both of the Houttuyn synonyms but *Andropogon capense* Houtt. escaped the notice of the compilers of "Index Kewensis" and its supplements. The type of *Andropogon muticum* Linn. Sp. Pl. ed. 2, 1482. 1763 was a specimen from the Cape of Good Hope, but there is no specimen in the Linnaean herbarium. From the description it seems clearly not to be the same as *Chloris petraea* Thunb.

Danthonia de Candolle

Danthonia lupulina (Linn. f.) Roem. & Schult. Syst. **2:** 690. 1817; Stapf in Thiselton-Dyer, Fl. Cap. **7:** 523. 1899.

Avena lupulina* Linn. f. Suppl. 113. 1781; Panzer, Pflanzensyst. **12: 489. 1785; Thunb. Prodr. Pl. Cap. 23. 1794.

The original description of *Avena lupulina* Linn. f. was based on a specimen from Thunberg, but the younger Linnaeus published his description twelve years in advance of Thunberg; Houttuyn did not include it in his "Natuurlyke historie."

Festuca Linnaeus

Festuca maritima Linn. Sp. Pl. 75. 1753; Aschers. & Graebn. Syn. Mittel-Europ. Fl. **2**(1)**:** 540. 1900; Hegi, Ill. Fl. Mittel-Europ. **1:** 330. 1908.

Triticum hispanicum* Reichard, Syst. Pl. **1: 240. 1779.

Triticum hispanicum* Houtt. Nat. Hist. II. **13: 441. 1782.

Triticum hispanicum Willd. Sp. Pl. **1:** 479. 1797.

Houttuyn's binomial, not, however, indicated as new, was based on a reference to "*Triticum* Cal. sexfloris, Flosc. secundis, apice Aristatis Mant. 325" (i.e., Linn. Mant. **2:** 325. 1771) and on "*Festuca* (*maritima*) spica lineari secunda recta. Flor. adpressis subaristatis, Sp. Pl. II. p. 110. Loefl. Itin. 44." The slightly earlier *Triticum hispanicum* Reich., also overlooked in "Index Kewensis," was based on the same references. The description in the second edition of the "Species Plantarum" does not differ from that in the first edition except in the addition of the page in the Loefling reference. Its basis was a Loefling specimen from Spain. Jackson states that the original specimen of *Festuca maritima* Linn. is not in the Linnaean herbarium. However, in the *Triticum* cover is a specimen marked in Linnaeus' handwriting "maritima 6"; this is

Festuca maritima Linn., *Festuca* no. 6 of the first edition of the "Species Plantarum." Preceding the specific name, in an unknown handwriting, is the name *Festuca*. Sir James Smith added the name *Triticum hispanicum* Reich. This specimen, judged from an excellent photograph courteously supplied by Mr. S. Savage, is unquestionably the type of *Festuca maritima* Linn., and is that species as it is currently interpreted by modern botanists. Linnaeus' annotations show that he did confuse this *Festuca maritima* (Sp. Pl. 75. 1753, and ed. 2, 110. 1762) with *Triticum maritimum* (Sp. Pl. ed. 2, 128. 1762), but probably this confusion occurred after the publication of the second edition of the work, as the first paragraph and diagnosis of *T. maritimum* is *Cutanda maritima* (Linn.) Benth. which was based on the former name. *Triticum maritimum* Linn. Mant. **2:** 325. 1771. "cum flores *omnino* spicati," showing it to be different from *Triticum maritimum* of Sp. Pl. ed. 2. 1762, is invalid. I agree with Mrs. Agnes Chase, to whom my data were submitted, that *Triticum hispanicum* Willd. Sp. Pl. **1:** 479. 1797, based on *Triticum maritimum* Linn. Mant. **2:** 325. 1771, with the diagnosis of *Festuca maritima* Linn. quoted, must be *Festuca maritima* Linn., and that the earlier *Triticum hispanicum* Reich. (1779) and *Triticum hispanicum* Houtt. (1782) represent the same species. In the "Mantissa" **2:** 325. 1771, Linnaeus, who in the meantime had apparently transferred the specimen from the *Festuca* to the *Triticum* cover in his herbarium, entered the species under *Festuca* as: "maritim. TRITICUM calycibus sexfloris" etc., excluding the Scheuchzer reference in the first edition of the "Species Plantarum."

Ischaemum Linnaeus

Ischaemum muticum Linn. Sp. Pl. 1049. 1753; Hack. in DC. Monog. Phan. **6:** 212. 1889.

Agrostis javanica* Houtt. Nat. Hist. II. **13: Aanwyz. Plaat. [2]. *t. 90. f. 5.* 1782; Panzer, Pflanzensyst. **12:** Verz. Kupfertaf. [2]. *t. 90. f. 5.* 1785.

There is no indication that *Agrostis javanica* Houtt. was a new binomial. In Houttuyn's text **13:** 225 it appears following number 19, *Agrostis mexicana* Linn. merely indicated as "*Javaansche,*" and in Panzer's text **12:** 299 as "eines javanischen Grases." Kunth, Enum. **1:** 512. 1833 cites "Agrostis javanica Burm. *herb.*" as a synonym of *Ischaemum muticum* Linn., and the "Index Kewensis" entry is "Burm. ex Kunth, Enum. Pl. i. 512 = *Ischaemum muticum.*" The Burman specimen at Geneva shows no evidence that it was from Houttuyn. The species is a very common and characteristic one occurring along the

seashore from India through Malaysia to tropical Australia, New Caledonia, Micronesia and western Polynesia.

Ischaemum indicum (Houtt.) comb. nov.

Phleum indicum* Houtt. Nat. Hist. II. **13: 198 *t. 90. f. 2.* 1782; Panzer, Pflanzensyst. **12:** 259. *t. 90. f. 2.* 1785.

Ischaemum ciliare Retz. Obs. **6:** 36. 1791; Hack. in DC. Monog. Phan. **6:** 225. 1889.

Houttuyn's material was from Java and his species was clearly indicated as a new one as indicated by *mihi* following the short Latin diagnosis. Houttuyn's illustration is a reasonably good one for this widely distributed grass, currently known as *Ischaemum ciliare* Retz., which is common in Java. More definitely Houttuyn's species seems to be the same as *Ischaemum ciliare* Retz. var. *genuinum* Hack., *3. malacophyllum* (Hochst.) Hack. in DC. Monog. Phan. **6:** 226. 1889.

Miscanthus Andersson

Miscanthus japonicus (Houtt.) Anders. Oefv. Vet. Akad. Förhandl. Stockh. **1855:** 165. 1856; Hack. in DC. Monog. Phan. **6:** 107. 1889.

Saccharum japonicum* Houtt. Nat. Hist. II. **13: Aanwyz. Plaat. [1]. *t. 89. f. 1.* 1782; Panzer, Pflanzensyst. **12:** Verzeich. Kupfertaf. [3]. *t. 89. f. 1.* 1785; Thunb. Trans. Linn. Soc. **2:** 328. 1794.

In his text, page 146, Houttuyn gives a cursory description, following *Saccharum officinarum* Linn., of a Japanese form that he did not there name; he published the binomial *Saccharum japonicum* only in the explanation of the plates, as did Panzer. In Panzer's work the description appears in **12:** 195. Andersson based *Miscanthus japonicus* on *Saccharum japonicum* Thunb. (1794), but Houttuyn actually published the latter binomial six years earlier. His specimen was received from Thunberg.

Perotis Aiton

Perotis indica (Linn.) O. Ktze. Rev. Gen. Pl. 787. 1891.

Anthoxanthum indicum Linn. Sp. Pl. 28. 1753.

Perotis latifolia Ait. Hort. Kew. **1:** 85. 1789.

Alopecurus bengalensis* Houtt. Nat. Hist. II. **13: 206. *t. 90. f. 4.* 1782; Panzer, Pflanzensyst. **12:** 272. *t. 90. f. 4.* 1785.

Alopecurus bengalensis Houtt. was clearly indicated as a new species as evidenced by the addition of *mihi* following the short Latin diagnosis. The illustration seems clearly to represent the common Indo-Malaysian *Perotis indica* (Linn.) O. Ktze.

Stipa Linnaeus

Stipa sp.

Aristida avenacea* Guettard ex Houtt. Nat. Hist. II. **13: 375. 1782; Panzer, Pflanzensyst. **12**: 512. 1785.

Houttuyn gives the reference as "Guett. *Mem. des Sciences & Arts* Tom I—p. 19 T. 1" which was repeated by Panzer; this was published in 1768. Here Guettard gives a long description of this grass, illustrated by two plates. His data were based on plants grown in France from seeds originating in the Ukraine. Although he provided a short Latin diagnosis and considered the species to be undescribed, he published no binomial, speaking of the grass as the "Tirsa" of the Cossacks. The binomial and its authority dates from Houttuyn's use of it in 1782. Mrs. Agnes Chase, to whom copies of the descriptions and illustrations were sent, reports that she was unable to place *Aristida avenacea* Guettard, to her satisfaction, among the known European species of *Stipa* and *Oryzopsis*, but suggests that possibly *Stipa tortilis* Desv. might be the species intended. The Guettard publication is Mém. Sci. Arts **1**: 19. *t. 1, 2*. 1768, item 3631 of Pritzel's "Thesaurus."

Cyperaceae

Carex Linnaeus

Carex cyperoides Murr. Syst. Veg. ed. 13, 703. 1774 (*cyperoideus*); Christm. Pflanzensyst. **12**: 664. 1785; Kükenth. Pflanzenr. **38(IV.20)**: 191. *f. 31 G-H*. 1909.

Carex cyperoidea* Houtt. Nat. Hist. II. **13: 517. 1782.

The slight change in the specific name by Houttuyn was probably due to an error in transcription.

Cyperus Linnaeus

***Cyperus javanicus** Houtt. Nat. Hist. II. **13**: Aanwyz. Plaat. [1]. *t. 88. f. 1*. 1782; Panzer, Pflanzensyst. **12**: Verzeich. Kupfertaf. [3]. *t. 88. f. 1*. 1785.

Cyperus pennatus Lam. Illustr. **1**: 144. 1791; Kükenth. Pflanzenr. **101 (IV.20)**: 476. *f. 53A-G*. 1936, *cum syn.*

Following *Cyperus difformis* Linn., Houttuyn, **13**: 68, gives a cursory description of this form without a binomial, but in the description of the plate actually published *Cyperus javanicus*. In Panzer's work it appears also without a binomial, **12**: 92. The illustration is an excellent one for this widely distributed plant which is a characteristic and abundant one growing near the sea throughout the Indo-Malaysian and Polynesian regions. Kükenthal cites over 20 synonyms. Its most common name in

standard literature is *Mariscus albescens* Gaudich. For *Cyperus javanicus* Kükenth. Repert. Sp. Nov. **29:** 194. 1931, Pflanzenreich **101(IV. 20):** 319. 1936, which is no longer valid for the species Kükenthal described, I propose **Cyperus Kükenthalii** nom. nov.

Eriophorum Linnaeus

Eriophorum virginicum Linn. Sp. Pl. **52:** 1753; Panzer, Pflanzensyst. **12:** 162. 1785; Britt. & Br. Ill. Fl. N. States Canada **1:** 273. *f. 643.* 1896, ed. 2, **1:** 326. *f. 800.* 1913.

Eriophorum virginianum* Houtt. Nat. Hist. II. **13: 127. 1782.

There is no evidence that Houttuyn deliberately changed the form of the specific name; Panzer three years later accepted the form as published by Linnaeus.

Scleria Bergius

Scleria zeylanica Poir. in Lam. Encycl. **7:** 3. 1806; Trimen, Fl. Ceyl. **5:** 97. 1900.

Juncus zeilanicus* Houtt. Nat. Hist. II. **13: Aanwyz. Plaat. [2]. *t. 93. f. 1.* 1782; Panzer, Pflanzensyst. **12:** Verzeich. Kupfertaf. [4]. *t. 93. f. 1.* 1785 (*zeylonicus*).

Houttuyn provided a cursory description of *Juncus zeilanicus* in the text, op. cit. 463, following *J. bulbosus* Linn., as did Panzer, **12:** 612, but the binomial appears only in the explanations of the plates in both works. The description clearly appertains to *Scleria*, for Houttuyn speaks of the pearl-like round seed. From the illustration it seems clear that *Scleria zeylanica* Poir. is the species represented, although Poiret's specific name was published without reference to Houttuyn's earlier one. Buchenau, in his monographic treatment of the Juncaceae, Pflanzenr. **25(IV.36):** 263. 1906, cites "*J. zeylanicus* Houttuyn, Linne's Pflanzen-System XII. (?) 62, *t. 39. f. 1;* t. E. Mey. Synops. Juncor. (1822) 59, 66," among the excluded species, but does not indicate the group to which it belongs.

ARACEAE

Acorus Linnaeus

Acorus Calamus Linn. Sp. Pl. 324. 1753.

Acorus verus* Houtt. Nat. Hist. II. **8: 379. 1777.

This is clearly referable to *Acorus Calamus* Linn. The binomial was not indicated as a new one, and there is no formal description or Latin diagnosis. The form Houttuyn named is the common one of the Old World tropics. Christmann, Pflanzensyst. **6:** 354–356. 1780, recognized only *A. Calamus* Linn.

Homalomena Schott

Homalomena cordata Schott, Melet. **1:** 20. 1832; Engl. & Krause, Pflanzenr. **55(IV.23 Da.):** 57. *f. 35.* 1912, *cum syn.*

Dracontium cordatum Houtt. Nat. Hist. II. **11:** 200. *t. 71. f. 2.* 1779; Panzer, Pflanzensyst. **10:** 151. *t. 71. f. 2.* 1783; non Aubl. 1775.

Houttuyn clearly indicated his species as a new one, it being based on Javan material. The species has been more or less confused with *Homalomena aromatica* (Roxb.) Schott, which is an Indian species, while the present one is known only from Java. Some botanists would doubtless consider that Houttuyn's specific name, being invalid in *Dracontium*, would hence not be available for transfer to *Homalomena*, yet this is permissible under the present rules of nomenclature by considering Schott's binomial as a new name.

Bromeliaceae

Aechmea Ruiz & Pavon

Aechmea lingulata (Linn.) Baker, Jour. Bot. **17:** 164. 1879.

Bromelia lingulata Linn. Sp. Pl. 285. 1753; Christm. Pflanzensyst. **6:** 299. 1780.

Bromelia lingularia* Houtt. Pflanzensyst. II. **8: 319. 1777.

Houttuyn's specific name *lingularia* was doubtless due to an inadvertent error on his part in transcribing the binomial.

Liliaceae

Eucomis L'Héritier

Eucomis comosa (Houtt.) comb. nov.

Asphodelus comosus Houtt. Nat. Hist. II. **12:** 336. *t. 83.* 1780; Panzer, Pflanzensyst. **11:** 381. *t. 83.* 1784.

Eucomis punctata L'Hér. Sert. Angl. 11. *t. 18.* 1788; Baker in Thiselton-Dyer, Fl. Cap. **6:** 475. 1897.

Fritillaria punctata Gmel. Syst. Nat. **2:** 545. 1791.

Ornithogalum punctatum Thunb. Prodr. Pl. Cap. 62. 1794.

Basilaea punctata Mirb. Hist. Nat. Pl. **8:** 339. 1804.

Houttuyn's species was described from a plant originating in South Africa, flowering in Leiden. He did not indicate it as a new species, yet the short Latin diagnosis is followed by his name. The "Index Kewensis" entry is to "Houtt. Plantenk. XII. 336. t. 83" and the species is correctly reduced to *Eucomis punctata* L'Hér.; Houttuyn's specific name is the oldest one and should be adopted.

Fritillaria Linnaeus

Fritillaria imperialis Linn. Sp. Pl. 303. 1753; Houtt. Nat. Hist. II. **12:** 247. 1780.

******Fritillaria corona imperialis* Panzer, Pflanzensyst. **11**: *276*. 1784.

Panzer did not indicate his binomial as a new name. Whether or not its publication was deliberate or accidental cannot be determined. In any case the specific name is a direct translation of the French common name *couronne imperiale* cited in the text.

Hosta Trattinick

Hosta lancifolia (Thunb.) Engl. in Engl. & Prantl Nat. Pflanzenfam. **2**(5): 40. 1888; Stearn, Gard. Chron. III. **90:** 48. 1931, *cum syn.*

Hemerocallis lancifolia Thunb. Trans. Linn. Soc. **2**: 335. 1794.

Aletris japonica Thunb. Nova Acta Soc. Sci. Upsal. **3**: 204, 208. 1780, Misc. Pap. Jap. Pl. Thunb. 18, 22. 1935 (facsimile reprint); Houtt. Nat. Hist. II. **12**: 413. *t. 84. f. 2.* 1780; Panzer, Pflanzensyst. **11**: 486. *t. 84. f. 2.* 1784; non *Hosta japonica* Tratt.

Hosta japonica Voss, Vilmor. Blumeng. **1**: 1076. 1895; L. H. Bail. Gent. Herb. **2**: 129. *f. 65.* 1930; non Tratt.

Houttuyn's specimen was received from Thunberg under the name he published, and I therefore interpret the *mihi* at the end of the Latin diagnosis to mean that Houttuyn was the author of the diagnosis but scarcely of the binomial. The "Index Kewensis" reference, by error, is actually to Panzer's work rather than to Houttuyn's, and the reduction to *Funkia obcordata* is an error. The figure cited in the L. H. Bailey reference is a photographic reproduction of Thunberg's type specimen; a cursory comparison of Houttuyn's figure with Bailey's illustration shows that both manifestly refer to the same species which one would suspect from the single source of the material on which both illustrations were based.

Lilium Linnaeus

Lilium candidum Linn. Sp. Pl. 302. 1753; Panzer, Pflanzensyst. **11:** 261. 1784.

******Lilium album* Houtt. Nat. Hist. II. **12**: 228. 1780.

In publishing the binomial *Lilium album*, which Houttuyn erroneously ascribed to Linnaeus, he inadvertently wrote "album" in place of "candidum," the names having a very similar connotation. There is no "*Lilium album*" other than Houttuyn's accidental publication of this binomial.

***Lilium japonicum** Thunb. in Houtt. Nat. Hist. II. **12:** *245. t. 82. f. 2.* 1780; Panzer, Pflanzensyst. **11:** *275. t. 82. f. 2.* 1784, *in nota;* Thunb. Fl. Jap. 133. 1784.

Houttuyn published this binomial four years before it appeared in

Thunberg's work. His material was received from Thunberg under this binomial.

Lilium pomponium Linn. Sp. Pl. 302. 1753; Houtt. Nat. Hist. II. **12:** 234. 1780.

Lilium pomponicum* Panzer, Pflanzensyst. **11: 266. 1784.

Panzer's slight change was in all probability due to an error in transcribing the specific name.

Medeola Linnaeus

Medeola virginiana Linn. Sp. Pl. 339. 1753; Houtt. Nat. Hist. II. **8:** 416. 1777; Britt. & Br. Ill. Fl. N. States Canada **1:** 435, *f. 1042*. 1896, ed. 2, **1:** 523. *f. 1298*. 1913.

Medeola virginica* Christm. Pflanzenfam. **6: 389. 1790.

Christmann's use of the specific name *virginica* was doubtless due to an error in transcription on his part.

Ornithogalum Linnaeus

Ornithogalum thyrsoides Jacq. Hort. Vind. **3:** 17. *t. 28*. 1776; Baker in Thiselton-Dyer, Fl. Cap. **6:** 499. 1897.

Ornithogalum dubium Houtt. Nat. Hist. II. **12:** 309. *t. 82. f. 3*. 1780; Panzer, Pflanzensyst. **11:** 347. *t. 82. f. 3*. 1784, *in nota*.

Baker definitely placed Houttuyn's species as a synonym of *Ornithogalum thyrsoides* Jacq. var. *aureum* (Curt.) Baker, op. cit. 500. Houttuyn's type was from the Cape of Good Hope region.

Amaryllidaceae

Agave Linnaeus

***Agave sobolifera** Houtt. Nat. Hist. II. **8:** 374. 1777.

Aloe americana sobolifera Herm. Hort. Acad. Lugd.-Bat. Cat. 16. *t.* 1687.

Houttuyn's binomial was based on Hermann's detailed description and rather good illustration, the latter's data being based on a plant flowering in Leiden. If *A. sobolifera* Salm-Dyck, Hort. Dyck. 307, 309. 1834 be distinct, then it needs a new name. Christmann and Panzer did not recognize Houttuyn's species.

Nerine Herbert

Nerine sarniensis (Linn.) Herb. App. [Bot. Reg.] 19. 1821; Baker in Thiselton-Dyer, Fl. Cap. **6:** 209. 1896.

Amaryllis sarniensis Linn. Sp. Pl. 293. 1753.

Amaryllis dubia Houtt. Nat. Hist. II. **12:** 181. *t. 82. f. 1.* 1780; Panzer, Pflanzensyst. **11:** 198. *t. 82. f. 1.* 1784; non Linn.

This was indicated by Houttuyn as new, his type being a specimen from the Cape of Good Hope. It has nothing to do with the earlier *Amaryllis dubia* Linn. which is a *Hippeastrum.*

Polianthes Linnaeus

Polianthes tuberosa Linn. Sp. Pl. 316. 1753.

Crinum angustifolium* Houtt. Nat. Hist. II. **12: 165. *t. 81. f. 3.* 1780; Panzer, Pflanzensyst. **11:** 181. *t. 81. f. 3.* 1784.

Houttuyn's material was from Java, received under the name *mohanks.* His description and illustration clearly apply to the common *Polianthes tuberosa,* a native of tropical America, but introduced into the Old World tropics at an early date in European colonial history for cultivation as an ornamental plant. *Crinum angustifolium* Linn. f. (1781) and *C. angustifolium* R. Br. (1810) represent entirely different species.

IRIDACEAE

Antholyza Linnaeus

Antholyza revoluta Burm. f. Prodr. Fl. Cap. 1. 1768; Baker in Thiselton-Dyer, Fl. Cap. **6:** 169. 1896.

Gladiolus recurvus sensu Houtt. Nat. Hist. II. **12:** 49. *t. 79. f. 1.* 1780; Panzer, Pflanzensyst. **11:** 59. *t. 79. f. 1.* 1784; non Linn.

Houttuyn did not describe *Gladiolus recurvus* as new but one notes various references to it in literature as such; he thought his plant represented the Linnaean species. It should be cited *sensu* Houttuyn, non Linn.

Gladiolus Linnaeus

Gladiolus liliaceus Houtt. Nat. Hist. II. **12:** 55. *t. 79. f. 2.* 1780; Panzer, Pflanzensyst. **11:** 65. *t. 79. f. 2.* 1784.

The entry in "Index Kewensis" is "*liliaceus*, Houtt. Handleid. xii. 55 = angustus, gracilis." Houttuyn's figure does not conform to the published illustrations of either *Gladiolus angustus* Linn. or *G. gracilis* Jacq. Manifestly only a single species is represented, not a mixture of two separate ones. It is not accounted for by Baker in his treatment of the Iridaceae of South Africa, Thiselton-Dyer, Fl. Cap. **6:** 7–171. 1896. While it clearly belongs in the group with terete or slender leaves, I am not able, from my limited knowledge of the genus, to refer it definitely to any of the generally recognized species. Houttuyn's material was from the Cape of Good Hope.

Ixia Linnaeus

Ixia campanulata Houtt. Nat. Hist. II. **12:** 42. *t. 78. f. 4.* 1780; Panzer Pflanzensyst. **11:** 49. *t. 78. f. 4.* 1784; N. E. Br. Kew Bull. **1929:** 133. 1929.

Ixia speciosa Andr. Bot. Repos. **3:** *t. 186.* 1802; Baker in Thiselton-Dyer, Fl. Cap. **6:** 80. 1896.

In the preliminary draft of this paper I had accepted Baker's interpretation of *Ixia campanulata* Houtt. (Fl. Cap. **6:** 80. 1896) although with little confidence that he was correct, as his description is distinctly not good for the form Houttuyn illustrated. Baker described the perianth-tube as not longer than the spathes; Houttuyn's figure shows the spathes to be only about one-half as long as the perianth-tube. I am indebted to Miss W. F. Barker who called my attention to N. E. Brown's note, Kew Bull. **1929:** 133. 1929, in which he states: "But as I find *I. campanulata* to be identical with *Ixia speciosa* Andr., which was not published until 1801, the name **I. campanulata** Houtt. must supersede *I. speciosa.* The plant Baker (Fl. Cap. vi. 80) has wrongly identified with *I. campanulata* Houtt. must be given a new name, and all references and synonyms quoted by him under *I. campanulata* excluded. I propose for it the name **Ixia dispar** N. E. Br.—" Mr. Brown further states: "The type of Houttuyn's figure and description, published in 1780, is in Burmann's herbarium, and upon the sheet is written in pencil the name '*Ixia crateroides* Ker' in Salisbury's handwriting." But Dr. Charles Baehni, who looked up the specimen for me states that the sheet in the Burman herbarium is labelled in Burman's handwriting "*Ixia campanulata* Houtt., there being no evidence that it is a Houttuyn plant; it also carries Brown's determination label and *Ixia crateroides* Ker in Salisbury's handwriting.

Ixia maculata Linn. Sp. Pl. ed. 2, 1664. 1763; Baker in Thiselton-Dyer, Fl. Cap. **6:** 81 1896.

Ixia abbreviata Houtt. Nat. Hist. II. **12:** 41. *t. 78. f. 3.* 1780; Panzer, Pflanzensyst. **11:** 48. *t. 78. f. 3.* 1784.

This is the currently accepted reduction of Houttuyn's species, and is undoubtedly the correct disposition of it, as his figure agrees excellently with those of other authors representing the Linnaean species.

Ixia paniculata De la Roche, Descr. Pl. Nov. 25. *t. 1.* 1776; Baker in Thiselton-Dyer, Fl. Cap. **6:** 85. 1896.

Houttuynia capensis Houtt. Nat. Hist. II. **12:** 448. *t. 85. f. 3.* 1780; Panzer, Pflanzensyst. **11:** 523. *t. 85. f. 3.* 1784.

In the "Botanical Magazine" **17:** t. 618. 1803 Ker-Gawler illustrated and described a plant as *Tritonia capensis* which he based nomenclaturally on *Houttuynia capensis* Houtt. The plant he illustrated is *Acidanthera capensis* Benth.; Baker in Thiselton-Dyer, Fl. Cap. **6:** 133. 1896. As a result of Ker-Gawler's misinterpretation of Houttuyn's species, the genus *Houttuynia* Houtt. is erroneously placed as a synonym of *Acidanthera* Hochstetter, although it seems manifestly to appertain to *Ixia*. *Houttuynia* Houtt. (1780) has priority over *Houttuynia* Thunb. (1784), but as the latter name is in general use for a very different group of plants in the Saururaceae it seems desirable to conserve the saururaceous *Houttuynia* Thunb. (1784) with *Polypara* Lour. (1780), *Anemia* Nutt. (1838) and *Aneuropsis* Hook. (1838) as synonyms. Were *Houttuynia* Houtt. (1780) actually synonymous with *Acidanthera* Hochst. (1844), the latter, to be valid, would need to be conserved. Such action is no longer necessary with the present disposition of *Houttuynia* Houtt. as a synonym of *Ixia* Linn. Bentham, Gen. Pl. **3:** 706. 1883, sub *Acidanthera* states: "Houttuynia Houtt. Handleit. (sic!) Pfl. Kund. xii. 448. t. 85. f. 3, ab auctoribus ad *Tritoniam capensem* refertur, sed icon spatham brevem exhibit Tritoniae nec Acidantherae et forma perianthii male cum *T. capense* convenit." Not being able to solve the problem of the identity of *Houttuynia capensis* Houtt. to my satisfaction an appeal was made to Dr. R. H. Compton at Kirstenbosch. He states that Miss W. F. Barker who investigated the matter reports that in her opinion the "Botanical Magazine" plates 618 and 1531 (*Tritonia capensis* Ker-Gawl. = *Acidanthera capensis* Benth.) do not represent the same species as that figured by Houttuyn. And that Houttuyn's illustration is a much better match for *Ixia paniculata* De la Roche, a species that occurs in the Cape Peninsula, and which has a regular flower with very short bracts. She lists the following illustrations as representing the same species that Houttuyn named and figured as *Houttuynia capensis* = *Ixia paniculata* De la Roche, Descr. Pl. Nov. 25. *t. 1.* 1766; *Ixia longiflora* Solander, Bot. Mag. **7:** *t. 256.* 1794; *Ixia longiflora* Solander; Redouté, Lil. **1:** *t. 34.* 1802; *Tritonia longiflora* Ker, Bot. Mag. **37:** *t. 1502.* 1813; *Gladiolus longiflorus* Thunb.; Jacq. Coll. Suppl. *t. 5. f. 1.* 1796 and *Gladioli longiflori varietas* Jacq. Ic. **2:** *t. 263.* 1786–93. Miss Barker's findings were confirmed by Miss G. J. Lewis. The specific name "*capensis*" may be retained for the *Acidanthera* (*A. capensis* Benth.) by considering its use by Ker-Gawler (as *Tritonia capensis*, 1803) as a new name and excluding the cited synonym *Houttuynia capensis* Houtt. Unless such action be taken, then *Acidan-*

thera capensis Benth. would have to be renamed. There are two synonyms, *Tritonia rosea* Ait. and *Gladiolus roseus* Jacq., both older than *Tritonia capensis* Ker = *Acidanthera capensis* Benth., but the specific name *rosea* is invalidated in *Acidanthera* by the very different *A. rosea* Schinz (1895).

Micranthus Persoon

Micranthus alopecuroides (Linn.) Eckl. Topog. Verzeich. 43. 1827.

Gladiolus alopecuroides Linn. Cent. II. Pl. 5. 1756, Amoen. Acad. **4**: 301. 1759.
Ixia triticea Burm. f. Prodr. Fl. Cap. 1. 1768.
Phalangium spicatum Houtt. Nat. Hist. II. **12**: 115. *t. 80. f. 2.* 1780; Panzer, Pflanzensyst. **11**: 129. *t. 80. f. 2.* 1784.
Ixia plantaginea Ait. Hort. Kew. **1**: 59. 1789.
Micranthus plantagineus Eckl. Topog. Verzeich. 43. 1827; Baker in Thiselton-Dyer, Fl. Cap. **6**: 97. 1896.

Baker, Fl. Cap. **6**: 97, 98. 1896, placed *Gladiolus alopecuroides* Linn. "ex parte" under both *Micranthus plantagineus* Eckl. and *M. fistulosus* Eckl. The Linnaean description was based on a single specimen received from Burman, still extant in Linnaeus' herbarium. A photograph of the sheet, kindly supplied by Mr. S. Savage, shows two specimens, but apparently representing a single species. On the sheet Linnaeus wrote "*Gladiolus alopecuroides* A" (i.e. a species published in the Systema Naturae, ed. 10, actually however, three years earlier in Cent. II. Pl. 5), and to the right of the left hand specimen "Sp. 190" (i.e. Sparmann). Sir James Smith added "*Ixia plantaginea* Wild. 23." The specimens seem clearly to represent the same species as that illustrated by Redouté, Lil. **4**: 198. *t. 198.* 1808 as *Ixia plantaginea* Ait. I had thought it possible that *Gladiolus spicatus* Linn. Sp. Pl. 37. 1753 might be involved in this synonymy. It was based wholly on a reference to Royen, Fl. Leyd. Prodr. 19. 1740, which in turn was a seven word description of an African plant. Baker curiously cites the species (Sp. Pl. ed. 2, 54. 1762) as a synonym of both *Micranthus fistulosus* Eckl. and *Watsonia punctata* Ker, but the 1762 description is exactly the same as that of 1753. The specimen in the Linnaean herbarium, which was there in the 1753 enumeration and marked "spicatus" by Linnaeus himself, cannot possibly be the type as it was collected by Gerber and was apparently of Russian origin. From a photograph of this specimen I judge it to be a true *Gladiolus,* perhaps not distinguishable from *G. communis* Linn.; cf. Reichenbach, Ic. Fl. Germ. **9**: *t. 349.* 1847 which very strongly resembles the Linnaean specimen. Royen's specimen may have been a *Micranthus;* one cannot say with certainty from the description alone.

Tritonia Ker-Gawler

Tritonia lacerata (Burm. f.) Klatt, Abh. Naturf. Ges. Halle **25:** 358 1882.

Gladiolus laceratus Burm. f. Prodr. Fl. Cap. 2. 1768; Houtt. Nat. Hist. II. **12:** 55. 1780.
Gladiolus crispus Linn. f. Suppl. 94. 1781.
Gladiolus lacerus* Panzer, Pflanzensyst. **11: 64. 1784.
Tritonia crispa Ker-Gawl. Bot. Mag. **17:** *t. 678.* 1803; Baker in Thiselton-Dyer, Fl. Cap. **6:** 122. 1896.

Panzer's specific name was probably due to a *lapsus calami* on his part, for there is no indication that he intended to publish a new one.

Watsonia Miller

Watsonia humilis Mill. Gard. Dict. ed. 8, no. 2. 1768; Baker in Thiselton-Dyer, Fl. Cap. **6:** 102. 1896.

Antholyza carophyllacea Burm. f. Prodr. Fl. Cap. 1. 1768; Houtt. Nat. Hist. II. **12:** 63. *t. 79. f. 3.* 1780.
Antholyza caryophyllea* Panzer, Pflanzensyst. **11: 76. 1784.

Baker apparently followed Thunberg, Fl. Cap. 50. 1823, in accrediting the binomial *Antholyza caryophyllacea* to Houttuyn; the latter merely accepted Burman's species. Panzer, as the authority for *A. caryophyllea,* merely replaces Vahl, Enum. **2:** 123. 1806.

ORCHIDACEAE

Dendrobium Swartz

Dendrobium moniliforme (Linn.) Sw. Nov. Act. Soc. Sci. Upsala **6:** 85. 1799.

Epidendrum moniliforme Linn. Sp. Pl. 954. 1753; Houtt. Nat. Hist. II. **11:** 169. 1779.
Epidendrum moniliferum* Panzer, Pflanzensyst. **10: 122. 1783.
Epidendrum Monile Thunb. Fl. Jap. 30. 1784.
Dendrobium Monile Kränzl. Pflanzenr. **45(IV.50.II.B.21):** 50. *f. 2.* 1910.

The Linnaean species was based wholly on *Fu-Ran,* Kaempfer, Amoen. 864. fig., 1712 and *Dendrobium moniliforme* (Linn.) Sw. should be interpreted by the Linnaean and Kaempfer references; the Kaempfer illustration is a good one. Kränzlin, Pflanzenr. **45(IV.50.II.B.21):** 51. 1910 discusses *D. moniliforme* Sw. under *D. Monile* (Thunb.) Kränzl. I think the latter, at least as represented by Terasaki, Nippon Shokubutsu Zuhu *f. 652.* 1933 is the same as *D. moniliforme* (Linn.) Sw. Many of the illustrations published as *D. moniliforme* Sw. in European literature do not represent that species, but that is no valid reason for considering *Dendrobium moniliforme* Sw. to be a *nomen confusum.*

Panzer's use of *moniliferum* as the specific name was doubtless due to an error in transcription.

Massonia Thunberg

***Massonia depressa** Thunb. in Houtt. Nat. Hist. II. **12:** 424. *t. 85. f. 1.* 1780; Panzer, Pflanzensyst. **11:** 498. *t. 85. f. 1.* 1784.

Massonia latifolia Linn. f. Suppl. 193. 1781; Baker in Thiselton-Dyer, Fl. Cap. **6:** 416. 1897.

Currently the publication of the genus *Massonia* is credited to Thunberg in Linnaeus f. Suppl. 1781, but Houttuyn published the generic name and the binomial for Thunberg one year earlier.

Satyrium Swartz

Satyrium coriifolium Sw. Vet. Acad. Handl. Stockh. **21:** 216. 1800; Rolfe in Thiselton-Dyer, Fl. Cap. **5**(3)**:** 161, 323. 1912.

Orchis cornuta sensu Houtt. Nat. Hist. II. **12:** 456. *t. 86. f. 2.* 1780; Panzer, Pflanzensyst. **11:** 531. *t. 86. f. 2.* 1784; non Linn.

Houttuyn did not propose a new binomial but attempted to interpret the Linnaean species. The Cape of Good Hope plant that he figured is, however, *Satyrium coriifolium* Sw., not *Orchis cornuta* Linn. The citation should be *sensu* Houtt., non Linn.

MORACEAE

Artocarpus J. R. & G. Forster

***Artocarpus rotunda** (Houtt.) Panzer, Pflanzensyst. **10:** 380. 1783.

Rademachia (Radermachia) rotunda* Houtt. Nat. Hist. II. **11: 455. 1779.

Artocarpus rigida Blume, Bijdr. 482. 1825; King, Ann. Bot. Gard. Calcutta **2:** 8. *t. 3.* 1889; Koord. & Val. Meded. Depart. Landbouw **2:** 17. 1906 (Bijdr. Boomsoort. Java **11:** 17).

Artocarpus echinata Roxb. Hort. Beng. 66. 1814, *nomen nudum,* Fl. Ind. ed. 2, **3:** 527. 1832.

Artocarpus dimorphophylla Miq. Fl. Ind. Bot. Suppl. 417. 1862.

Houttuyn did not indicate his species as new and provided no Latin diagnosis; neither did Panzer indicate his binomial as a new one, both being thus overlooked by later botanists. From Houttuyn's description *Artocarpus rigida* Blume is clearly indicated, his material being from Java. This interpretation is further verified by the local name *mandelique* cited by him; Heyne gives it, after Backer, as *mandelika,* and Koorders and Valeton cite it as *mandaliké.*

PROTEACEAE

Leucadendron R. Brown

Leucadendron pedunculatum Meisn. in DC. Prodr. **14:** 216. 1856.

Protea linearis Houtt. Nat. Hist. II. **4**: 116. *t. 19. f. 2.* 1775; Christm. Pflanzensyst. **3**: 84. *t. 19. f. 2.* 1778.

Leucadendron lineare R. Br. ex Steud. Nomencl. ed. 2, **2**: 34. 1841; non Burm. f. 1768.

Leucadendron tortum R. Br. Trans. Linn. Soc. **10**: 56. 1810; Phillips & Hutch. in Thiselton-Dyer, Fl. Cap. **5**(1): 524. 1912; non *Protea torta* Thunb.

Houttuyn's type was from the Cape of Good Hope region, and his species has been placed as a doubtful synonym of *Leucadendron angustatum* R. Br., itself a species of doubtful status, and is so left by Phillips & Hutchinson, op. cit. 549. From Houttuyn's distinctly good figure I suspect that the species currently known as *Leucadendron tortum* R. Br. is the one represented. I fail to see how the latter name can be maintained for this particular species as it was based on *Protea torta* Thunb., in spite of the fact that Robert Brown cited the latter as a doubtful synonym; he was probably misled by Jacquin's erroneous interpretation of Thunberg's species. *Leucadendron fusciflorum* R. Br. Trans. Linn. Soc. **10**: 216. 1810; Phillips & Hutch. in Thiselton-Dyer, Fl. Cap. **5**(1): 527. 1912 is to be replaced by **Leucadendron tortum** (Thunb.) R. Br. I am by no means certain that the Meisner binomial that I have adopted for *Leucadendron tortum* sensu Phillips & Hutch., non (Thunb.) R. Br., is the oldest valid one for this particular species.

Protea Linnaeus

***Protea arborea** Houtt. Nat. Hist. II. **4**: 107. 1775.

Protea grandiflora Thunb. Prot. 56. 1781; Phillips & Stapf in Thiselton-Dyer, Fl. Cap. **5**(1): 580. 1912.

Houttuyn's overlooked binomial was based wholly on *Lepidocarpodendron folio saligno*, etc. Boerh. Ind. Alt. Hort. Lugd.-Bat. **2**: 183. *t. 183.* 1720, and was not indicated by him as new; it was not admitted by Christmann and Panzer. Phillips and Stapf cite Boerhaave's pre-Linnaean description and illustration as representing *Protea grandiflora* Thunb. and it is an excellent representation of that species. Houttuyn's specific name antedates Thunberg's by six years. *Protea arborea* Schultes (not Link as cited by some authors) Syst. Veg. Mant. **3**: 266. 1827 is a *nomen nudum*.

Serruria Salisbury

Serruria pedunculata (Lam.) R. Br. Trans. Linn. Soc. **10**: 119. 1810.

Protea pedunculata Lam. Ill. **1**: 240. 1791–97.

Protea sphaerocephala sensu Houtt. Nat. Hist. II. **4**: 99. *t. 19. f. 1.* 1775; Christm. Pflanzensyst. **3**: 72. *t. 19. f. 1.* 1778; non Linn.

Protea glomerata Andr. Bot. Repos. **4**: *t. 264.* 1803, non Linn.

Serruria artemisifolia Knight, Prot. 80. 1809; Philipps & Hutch. in Thiselton-Dyer, Fl. Cap. **5**: 675. 1912.

Houttuyn did not describe this as new but thought that the form he illustrated represented *Protea sphaerocephala* Linn. His binomial appears in botanical literature as an independently published one. The "Index Kewensis" entry reads "*sphaerocephala,* Houtt. Handleid. iv. 99. t. 19. f. 1. = Serruria hirsuta, pedunculata, scariosa," copied from Steudel, Nomencl. ed. 2, **2**: 401. 1841. But a single species is represented by the illustration.

LORANTHACEAE

Viscum Linnaeus

Viscum album Linn. Sp. Pl. 1023. 1753.

Viscum polycoccon* Houtt. Nat. Hist. II. **6: 336. 1776.

The cursory description apparently applies to a many fruited form of the European *Viscum album* Linn.

SANTALACEAE

Thesium Linnaeus

Thesium Linophyllon Linn. Sp. Pl. 207. 1753; Houtt. Nat. Hist. II. **7**: 719. 1777 (*linophyllum*); Hegi, Ill. Fl. Mittel-Europa **3**: 154. *f. 515*. 1910.

Thesium linifolium* Christm. Pflanzensyst. **5: 738. 1779.

Christmann's new binomial was doubtless due to an inadvertent error on his part in transcribing the specific name. *Thesium linifolium* Schrank, Reise 129. 1786, Baier. Fl. **1**: 506. 1789, another synonym, is antedated by nine years.

ARISTOLOCHIACEAE

Aristolochia *Linnaeus*

Aristolochia Clematitis Linn. Sp. Pl. 962. 1753; Hegi, Ill. Fl. Mittel-Europa **3**: 163. *f. 520*. 1910.

Aristolochia tenuis* Houtt. Nat. Hist. II. **6: 215. 1776.

There is no formal description nor any indication that *Aristolochia tenuis* was a new binomial; it was not accepted by Christmann and Panzer. From the data given it is reasonably safe to place *A. tenuis* Houtt. as a synonym of *A. Clematitis* Linn.

POLYGONACEAE

Polygonum Linnaeus

Polygonum chinense Linn. Sp. Pl. 363. 1753.

Rumex umbellatus Houtt. Nat. Hist. II. **8**: 414. *t. 47. f. 3.* 1777; Christm. Pflanzensyst. **6**: 388. *t. 47. f. 3.* 1780.

This reduction was indicated in "Index Kewensis," following Meisner's correct disposition of Houttuyn's species which Houttuyn himself had indicated at the end of the explanation of the plates **8**: [4]. 1777. Houttuyn's specimen was from Japan. He did not indicate *Rumex umbellatus* as new and supplied no Latin diagnosis.

Polygonum cuspidatum Sieb. & Zucc. Abh. Akad. Muench. **4**(2): 208. 1846 (Fl. Jap. Fam. Nat. **2**: 84.); Nakai, Fl. Korea. **2**: 173. 1911; Merr. Rhodora **40**: 290. 1938 (Contr. Gray Herb. **122**: 290).

Reynoutria japonica Houtt. Nat. Hist. II. **8**: 640. *t. 51. f. 1.* 1777; Christm. Pflanzensyst. **6**: 628. *t. 51. f. 1.* 1780; Ohki, Bot. Mag. Tokyo **40**: 49. 1926; Danser, Bull. Jard. Bot. Buitenz. III. **8**: 26. 1926; non *Polygonum japonicum* Meisn.

Polygonum pictum Sieb. Jaarb. Nederl. Maatsch. Aanm. Tuinb. **1848**: 44. 1848, *nomen nudum.*

Polygonum Sieboldii Reinw. ex De Vriese op. cit. **1849**: 31. 1850, *in syn.*; L. H. Bailey Cycl. Am. Hort. **3**: 1393. *f. 1880.* 1901.

Polygonum Zuccarinii Small, Mem. Dept. Bot. Columbia Univ. **1**: 158. *t. 66.* 1895.

Polygonum Reynoutria Makino, Bot. Mag. Tokyo **15**: 84. 1901; Somuku-Dzusetsu ed. 3, **1**: 75. *t. 75.* 1910.

Pleuropterus Zuccarinii Small in Britt. & Brown Illus. Fl. N. States Canada ed. 2, **1**: 676. *f. 1655.* 1913.

Pleuropterus cuspidatus H. Gross in Loesen. Beih. Bot. Centralbl. **37**(2): 114. 1919.

Pleuropterus cuspidatus Moldenke, Torreya **34**: 7. 1934.

This was described by Houttuyn as a new genus and species. The genus was listed in "Index Kewensis" as one of uncertain status. It does not appear in Bentham & Hooker f. "Genera Plantarum" nor in Engler & Prantl, "Die Natürlichen Pflanzenfamilien." In 1901 Makino recognized it as being identical with the very common *Polygonum cuspidatum* Sieb. & Zucc. Danser* in 1926 reproduced Houttuyn's original description and illustration. Since 1895 the species has acquired at least four bibliographic synonyms, although under present rules Siebold and Zuccarini's specific name is valid in *Polygonum*, the "earlier" *P. cuspidatum* Willd. appearing only in synonymy, and hence not validly published. Relatively new synonyms are *Polygonum Reynoutria* Makino (1901), *Polygonum Zuccarinii* Small (1895), *Pleuropterus Zuccarinii* Small (1913), *Pleuropterus cuspidatus* H. Gross (1919), and *P. cuspidatus* Moldenke (1934). The oldest valid specific name in *Polygonum*

*Danser, B. H. Die systematische Stellung der Houttuyn'schen Gattungen Reynoutria und Truellum. Bull. Jard. Bot. Buitenz. III. **8**: 25-31. *f. 1-2.* 1926.

is *P. cuspidatum* Sieb. & Zucc.; in *Reynoutria*, if one wishes to segregate smaller genera from the collective group *Polygonum*, *R. japonica* Houtt. *Pleuropterus* Turcz. (1848) is a synonym of *Reynoutria* Houtt. (1777). For notes on the validity of the specific name *cuspidatum* in *Polygonum*, see Moldenke, *l. c.*, and Rehder, Jour. Arnold Arb. **17**: 316. 1936.

Polygonum multiflorum Thunb. Fl. Jap. 169. 1784.

Polygonum chinense sensu Houtt. Nat. Hist. II. **8**: 479. *t. 49. f. 3.* 1777; Christmann, Pflanzensyst. **6**: 453. *t. 49. f. 3.* 1780, *quoad illus.;* non Linn.

Strictly the Houttuyn entry goes with *Polygonum chinense* Linn. Following the short cursory description he discusses two plants, one the "Javaansch" form (*P. chinensis* Linn.), the other the "Japansch" form, his illustration being based on the latter; this is clearly *P. multiflorum* Thunb.

Polygonum senticosum (Meisn.) Fr. & Sav. Enum. Pl. Jap. **1**: 401. 1875; Steward, Contr. Gray Herb. **88**: 82. 1930.

Truellum Houtt. Nat. Hist. II. **8**: 427. *t. 48. f. 1.* 1777.

Truellum japonicum Houtt. op. cit. Aanwyz. Plaat. [2]; Christmann, Pflanzensyst. **6**: 401. *t. 48. f. 1.* 1780, non *Polygonum japonicum*, Meisn.

Persicaria senticosa H. Gross, Beih. Bot. Centralbl. **37**(2): 113. 1919.

Truellum senticosum Danser, Bull. Jard. Bot. Buitenz. III. **8**: 31. 1926, *in nota.*

Polygonum Truellum Koidz. Bot. Mag. Tokyo **40**: 334. 1926.

Persicaria Truellum Masam. Prel. Rep. Veg. Yakusima 71. 1929.

The genus *Truellum* was apparently overlooked by all botanists since Christmann's consideration of it in 1780 until the Japanese botanists (Koidzumi in 1926, Masamune in 1929) and Dr. Danser (in 1926) called attention to it. It does not appear in "Index Kewensis" until Suppl. **7**(1929), and was not mentioned by Bentham and Hooker f., nor by Engler and Prantl. Danser reproduced Houttuyn's original description and illustration. The type was from Japan, the species being a common one in eastern Asia. As a name for generic segregates from *Polygonum*, *Truellum* replaces *Echinocaulon* Spach (1841) and *Chylocalyx* Hassk. (1842), but not *Persicaria* Linn. Perhaps the extremists would consider that in Christmann's note "welche zwar mit dem *Polygonatum (sic!) perfoliatum viele Aehnlichkeit hat" (p. 401), that here is another binomial that ought to be listed, although manifestly *Polygonum perfoliatum* Linn. was intended. At the end of the description of the plates 8: [4]. 1777, Houttuyn discusses *Truellum japonicum* in relation to *Polygonum perfoliatum* Linn.

Polygonum viviparum Linn. Sp. Pl. 360. 1753; Christm. Pflanzensyst. **6:** 439. 1780.

Polygonum proliferum* Houtt. Nat. Hist. II. **8: 461. 1777.

There is no indication that *P. proliferum* Houtt. was a new binomial, and no reason is given for his non-acceptance of the Linnaean specific name; the references are to several of those cited in the original description of *Polygonum viviparum* Linn. Three years later Christmann accepted the Linnaean binomial without listing *P. proliferum* Houtt. in the synonymy.

Rumex Linnaeus

***Rumex japonicus** Houtt. Nat. Hist. II. **8:** 394. *t. 47. f. 2.* 1777; Christm. Pflanzensyst. **6:** 371. *t. 47. f. 2.* 1780, *in nota, sine nomine.*

Rumex japonicus Meisn. Ann. Mus. Bot. Lugd.-Bat. **2:** 56. 1865.

Houttuyn did not indicate this as new and provided no Latin diagnosis. His illustration is of the fruit only. From this, and the other data given, I take the species to be the same as the one described by Meisner in 1865 independently under the same specific name. This conclusion had already been reached by modern Japanese botanists; see Masamune, Mem. Fac. Sci. Agr. Taihoku Univ. **11:** Bot. **4:** 171. 1934 (Fl. Yakusim. 171).

AMARANTHACEAE

Alternanthera Forskål

Alternanthera sessilis (Linn.) R. Br. ex Schult. in Roem. & Schult. Syst. **5:** 554. 1819.

Gomphrena sessilis Linn. Sp. Pl. 225. 1753.

Illecebrum sessile Linn. Sp. Pl. ed. 2, 300. 1762.

Illecebrum indicum* Houtt. Nat. Hist. II. **7: 713. *t. 43. f. 3.* 1777; Christm. Pflanzensyst. **5:** 731. *t. 43. f. 3.* 1779.

Houttuyn did not indicate *Illecebrum indicum* as new except incidentally in the text. It seems clearly to be only a rather luxuriant form of the very common *Alternanthera sessilis* (L.) R. Br.

Amaranthus Linnaeus

Amaranthus inamoenus Willd. Hist. Amarant. 14. *t. 7. f. 14.* 1790, Sp. Pl. **4:** 386. 1805; Makino, Jour. Jap. Bot. **3:** 9. 1926 (f. *viridis*); Makino & Nemoto, Fl. Jap. ed. 2, 275. 1931 (f. *viridis*).

Amaranthus japonicus* Houtt. in Willd. Sp. Pl. **4: 386. 1805, *in syn.*

Amaranthus Mangostanus sensu Houtt. Nat. Hist. II. **11:** 254. *t. 72. f. 1.* 1779; Panzer, Pflanzensyst. **10:** 198. *t. 72. f. 1.* 1783; non Linn.

Amaranthus gangeticus Linn. var. *inamoenus* Moq. in DC. Prodr. **13**(2): 261. 1849.

The synonymy, as given above, is primarily bibliographic as I do not understand the exact relationship of the Japanese plant that Houttuyn illustrated with allied forms described by other authors; nor is it certain that the form Willdenow named as *A. inamoenus* is the same as the one Houttuyn had, for he states "v. v." indicating that he had seen a living plant. The "Index Kewensis" reference to *Amaranthus japonicus* is "Houtt. ex Steud. Nom. ed. 1, 36." Houttuyn did not publish the binomial accredited to him by Willdenow, speaking of it as the "Japanische Amaranth," while Panzer, to whose work the Willdenow reference applies, cites it as "Amaranthus Mangostanus, aus Japan."

Celosia Linnaeus

Celosia argentea Linn. Sp. Pl. 205. 1753.

**Celosia japonica* Houtt. Nat. Hist. II. 7: Aanwyz. Plaat. [2]. *t. 43. f. 1.* 1777; Christm. Pflanzensyst. 5: Verzeich. Kupfertaf. [2]. *t. 43. f. 1.* 1779.

Houttuyn gives a cursory description of the plant in his text, **7:** 702, without a Latin name, as does Christmann, **5:** 720, following *C. margaritacea* Linn. The binomial *Celosia japonica* appears in both works only in the explanation of the plates. The species is clearly the same as *C. argentea* Linn.

CARYOPHYLLACEAE

Cerastium Linnaeus

Cerastium viscosum Linn. Sp. Pl. 437. 1753; Houtt. Nat. Hist. II. 8: 682. 1777.

Cerastium viscidum* Christm. Pflanzensyst. **6: 668. 1780.

Christmann's use of the specific name *viscidum* was undoubtedly due to a *lapsus calami* on his part.

Corrigiola Linnaeus

Corrigiola littoralis Linn. Sp. Pl. 271. 1753; Christm. Pflanzensyst. **6:** 216. 1780.

**Corrigiola littorea* Houtt. Nat. Hist. II. 8: 237. 1777.

Houttuyn's slight change in the Linnaean binomial for this European species was doubtless an inadvertent one, which Christmann corrected three years later.

Delia Dumortier

Delia segetalis (Linn.) Dum. Fl. Belg. 110. 1827; Hegi, Ill. Fl. Mittel-Europa **3:** 425. 1911.

Alsine segetalis Linn. Sp. Pl. 272. 1753; Houtt. Nat. Hist. II. **8**: 247. 1777.

Alsine segetum* Christm. Pflanzensyst. **6: 223. 1780.

Spergularia segetalis G. Don, Gen. Syst. **1**: 425. 1831; Link, Handb. **2**: 259. 1831; Fenzl in Ledeb. Fl. Ross. **2**: 166. 1844–46.

Christmann's new binomial was doubtless due to an inadvertent error in transcribing the specific name.

Dianthus Linnaeus

Dianthus fruticosus Linn. Sp. Pl. 413. 1753; Boiss. Fl. Orient. **1**: 499. 1867.

Dianthus frutescens* Houtt. Nat. Hist. II. **5: 109. 1775; Christm. Pflanzensyst. **6**: 572. 1780.

Houttuyn's new binomial was surely an unintentional one, being due to an error in transcribing the Linnaean one; the references are to the Linnaean species.

Tunica Scopoli

Tunica prolifera (Linn.) Scop. Fl. Carn. ed. 2, **1**: 299. 1772; Hegi, Fl. Mittel-Europa **3**: 315. 1910.

Dianthus prolifer Linn. Sp. Pl. 410. 1753.

Dianthus diminutus Linn. Sp. Pl. ed. 2, 587. 1762; Houtt. Nat. Hist. II. **8**: 583. 1777.

Caryophyllus diminutus* Christm. Pflanzensyst. **6: 563. 1780.

Caryophyllus diminutus is manifestly an inadvertent binomial, for Christmann described nineteen other species of the genus under *Dianthus;* he accidentally transcribed the pre-Linnaean generic name in this case, which Linnaeus had replaced by *Dianthus*.

RANUNCULACEAE

Clematis Linnaeus

Clematis florida Thunb. Fl. Jap. 240. 1784; Rehd. & Wils. in Sargent Pl. Wils. **1**: 325. 1913, *cum syn.*

Anemone japonica* Houtt. Nat. Hist. II. **9: 191. *t. 55. f. 1.* 1778, non *Clematis japonica* Thunb.

Anemone, oder *Anemonoides* Christm. Pflanzensyst. **7**: Verzeich. Kupfertaf. [2]. *t. 55. f. 1.* 1781.

Clematis japonica sensu Makino Bot. Mag. Tokyo **26**: 81. 1912, non Thunb.

Houttuyn gave no Latin diagnosis and did not indicate his species as new; it was not accepted by Christmann who reproduced the illustration and indicated the species in the explanation of the plates [2] as "Eine Japanische Anemone oder Anemonoides." Houttuyn's specimen was

from Japan, unquestionably received from Thunberg, as his illustration very closely approximates Thunberg's actual type of *Clematis florida*, represented by a photograph in the Arnold Arboretum herbarium. Makino erred (Bot. Mag. Tokyo **25**: 81. 1912) in recording the species as *Clematis japonica* Houtt., for Houttuyn did not publish this binomial, but rather *Anemone japonica*. Houttuyn's specific name is invalidated in *Clematis* by *C. japonica* Thunb. **Clematis ternata* Makino, l. c., overlooked by the compilers of the supplements to "Index Kewensis," is an unnecessary synonym of *Clematis japonica* Thunb. The species is not native of Japan, but was introduced from China. *Anemone japonica* Sieb. & Zucc. Fl. Jap. **1**: 15. *t. 5*. 1835 (*Atragene japonica* Thunb., *Clematis polypetala* DC., non *Anemone polypetala* Larrañaga, 1923) being no longer a valid name for the Japanese species, it is renamed **Anemone nipponica** nom. nov.

Coptis Salisbury

Coptis trifolia (Linn.) Salisb. Trans. Linn. Soc. **8**: 305. 1807.

Helleborus trifolius Linn. Sp. Pl. 558. 1753; Christm. Pflanzensyst. **7**: 376. 1781.

Helleborus trifoliatus* Houtt. Nat. Hist. II. **9: 262. 1778.

Houttuyn's slight change in the form of the specific name was probably unintentional, as there is no indication that he intended to publish a new one.

Ranunculus Linnaeus

Ranunculus pyrenaeus Linn. Mant. **2**: 248. 1771; Houtt. Nat. Hist. II. **9**: 226. 1778; DC. Prodr. **1**: 31. 1824.

Ranunculus pyrenaicus* Christm. Pflanzensyst. **7: 333. 1781.

The slight change in the specific name was doubtless due to an error in transcription on Christmann's part.

LARDIZABALACEAE
Akebia Decaisne

Akebia quinata (Thunb.) Dcne. Arch. Mus. Paris **1**: 195. *t. 13a*. 1839, Ann. Sci. Nat. II. Bot. **12**: 107. 1839.

Rajania quinata* Thunb. ex Houtt. Nat. Hist. II. **11: 366. *t. 75. f. 1*. 1779; Panzer, Pflanzensyst. **10**: 287. *t. 75. f. 1*. 1783 (*Rainia*); Thunb. Fl. Jap. 148. 1784.

Houttuyn's publication of Thunberg's binomial antedates that of Thunberg himself by five years. His specimen was received from Thunberg.

MENISPERMACEAE

Stephania Loureiro

Stephania hernandifolia (Willd.) Walp. Repert. **1:** 96. 1842; Diels, Pflanzenr. **46(IV. 94):** 279. 1910.

Cissampelos hernandifolia Willd. Sp. Pl. **4:** 861. 1806.
Menispermum glabrum sensu Houtt. Nat. Hist. II. **11:** 377. *t. 75. f. 2.* 1779, Panzer, Pflanzensyst. **10:** 298. *t. 75. f. 2.* 1783, *in nota;* non Burm. f.

The Javan specimen that Houttuyn illustrated clearly represents a *Stephania,* and undoubtedly *S. hernandifolia* (Willd.) Walp. as that species is currently interpreted. It is not at all *Menispermum glabrum* Burm. f., which has deeply cordate leaves, while Houttuyn's plant has broadly peltate ones. Doctor Baehni informs me that there are two sheets in Burman's herbarium, one with cordate leaves, labelled by Burman as *Menispermum glabrum* (this is the holotype), the other, also labelled *Menispermum glabrum,* is the *Stephania,* but there is no positive evidence that this came from Houttuyn's herbarium. *Menispermum glabrum* Burm. f. is placed as synonym of *Tinospora crispa* (Linn.) Diels (non Miers), but as *Menispermum crispum* Linn., the name-bringing synonym of the latter, was based entirely on *Funis felleus* Rumph. Herb. Amb. **5:** 82. *t. 44. f. 1.* 1747 it seems to be evident that Diels has misinterpreted the Linnaean species. Rumphius' distinctly good illustration shows a plant which I believe to represent *Tinospora Rumphii* Boerl., the form with broadly ovate, deeply cordate leaves, and one very different from the form that Diels illustrated. In any case the binomial is *Tinospora crispa* (Linn.) Miers, for a new combination with Diels as the authority is inadmissible.

While this paper was in proof I received, through the courtesy of Dr. B. P. G. Hochreutiner, a very excellent photograph of the holotype of *Menispermum glabrum* Burm. f. This species, not accounted for by Diels, is clearly the same as the misinterpreted *Tinospora crispa* (Linn.) Diels. The following adjustment in synonymy is made:

Tinospora glabra (Burm. f.) comb. nov.

Menispermum glabrum Burm. f. Fl. Ind. 216 (err. typ. 316). 1768.
Tinospora crispa Diels, Pflanzenr. **46(IV.94):** 142. *f. 49.* 1910; non Miers, non *Menispermum crispum* Linn.

This form, which is common in Java and which extends, according to Diels, from India and Ceylon to Java, Borneo and the Aru Islands, has oblong to oblong-ovate, slightly cordate leaves and smooth stems, as contrasted to the broadly ovate, deeply cordate leaves and strikingly verrucose stems of *Tinospora crispa* (Linn.) Miers.

Menispermum crispum Linn. Sp. Pl. was based wholly on "Funis quadrangularis, *Rumph. amb. 5. p. 83 t. 44. f. 1.*," for Linnaeus had no specimen. He confused two entirely different plants in this citation. The "Funis quadrangularis" is *Cissus quadrangularis* Linn., the plant figured on *t. 44. f. 2;* Linnaeus' own reference is to *t. 44. f. 1,* which is *Funis felleus* Rumph. described on page 83. The statement that the species came from Bengal was copied from Rumphius' indication that *Funis quadrangularis* (*Cissus quadrangularis*) had been introduced into Java from Bengal; Linnaeus later actually cited *Funis quadrangularis* Rumph. (Mant. **1:** 39. 1767) in the original description of *Cissus quadrangularis* Linn. It is believed that Linnaeus' intention was clear, and that he had in mind the menispermaceous plant illustrated on plate 44 (figure 1), not the entirely different vitaceous one (figure 2). His descriptive phrase "Menispermum foliis cordatis exquisitis, caule quadrangulo crispo" clearly indicates this, for it applies to figure 1 (*Funis felleus*), not to figure 2 (*Funis quadrangularis*); for Rumphius' excellent figure of the former shows the strikingly verruculose stems, the protuberances *apparently* (not actually in nature) conforming, in the artist's arrangement of them, to the descriptive phrase "caule quadrangulo crispo"; the other plant illustrated on the same plate has smooth 4-angled stems, not at all "crispo." It is, I am reasonably confident, the "macabuhay" of the Philippines, and is, I believe, the form described by Boerlage as *Tinospora Rumphii.* If this be the case, then *Tinospora Rumphii* Boerl. becomes a synonym of the true *Tinospora crispa* (Linn.) Miers. *Tinospora cordifolia* (Willd.) Miers is another possibility for the Linnaean species. This extends from India and Ceylon to Burma and the Andaman Islands, but is not recorded from Malaysia. Rumphius notes that his *Funis felleus* was introduced into Amboina about 1690, but does not indicate its source.

Myristacaceae

Horsfieldia Willdenow

Horsfieldia sylvestris (Houtt.) Warb. Nova Acta Acad. Leop.-Carol. Nat. Cur. **68:** 337. *t. 12. f. 1–6.* 1897.

Myristica sylvestris Houtt. Nat. Hist. II. **3:** 340. 1774; Christm. Pflanzensyst. **2:** 326. 1777.

This was clearly indicated by Houttuyn as a new species. Warburg's interpretation of it is doubtless correct, although his citation is to Christmann's consideration of it in 1777 rather than to Houttuyn's original description of 1774.

Myristica Linnaeus

Myristica fragrans Houtt. Nat. Hist. II. **3:** 333. 1774; Christm. Pflanzensyst. **2:** 322. 1777; Warb. Nova Acta Acad. Leop.-Carol. Nat. Cur. **68:** 458. 1897.

Houttuyn described three species of *Myristica,* the first two still remaining in the genus, the third, now placed in the allied genus *Horsfieldia*. *Myristica fragrans* Houtt. is the common nutmeg. It was clearly indicated as new. Warburg cites a Houttuyn specimen in the Copenhagen herbarium. This, which I have had the privilege of examining, is a small specimen in Vahl's herbarium labelled on the back "*Myristica aromatica* ded. Dr. Houttuyn." *Myristica aromatica* Sw. is a synonym of *M. fragrans* Houtt.

Myristica fatua Houtt. Nat. Hist. II. **3:** 337. 1774; Christm. Pflanzensyst. **2:** 324. 1777; Warb. Nova Acta Acad. Leop.-Carol. Nat. Cur. **68:** 458. *t. 11. f. 1–7.* 1897.

It seems entirely safe to accept the current interpretation of this species as correct. Houttuyn clearly indicated it as new.

CRUCIFERAE

Arabis Linnaeus

Arabis virginica (Linn.) Trelease in Branner & Coville, Rep. Geol. Surv. Ark. **1884**(4): 165. 1891; Britt. & Br. Illus. Fl. N. States Canada **2:** 147. *f. 1771.* 1897, ed. 2, **2:** 179. *f. 2069.* 1913.

Cardamine virginica Linn. Sp. Pl. 656. 1753; Houtt. Nat. Hist. II. **9:** 667. 1778.

Cardamine virginiana* Panzer, Pflanzensyst. **8: 282. 1782.

The binomial published by Panzer was probably due to an error in transcription, as there is no evidence that he intended to propose a new name.

Didesmus Desvaux

Didesmus aegyptius (Linn.) Desv. Jour. de Bot. Appl. **3:** 160. *t. 25. f. 11.* 1814; Muschler, Man. Fl. Egypt **1:** 431. 1912.

Myagrum aegyptium Linn. Sp. Pl. 641. 1753; Houtt. Nat. Hist. II. **9:** 600. 1778.

Myagrum aegyptiacum* Panzer, Pflanzensyst. **8: 195. 1782.

Rapistrum aegyptium Coss. Bull. Soc. Bot. France **22:** 46. 1875.

Panzer's publication of the specific name *aegyptiacum* was probably due to a *lapsus calami* on his part. In "Index Kewensis" *Rapistrum aegyptium* is credited to Baillon, Hist. Pl. **3:** 197. 1872, but Baillon there failed to make the transfer.

RESEDACEAE

Reseda Linnaeus

Reseda undata Linn. Syst. ed. 10, 1046. 1759; Christm. Pflanzensyst. **7:** 29. 1781; Muell.-Arg. in DC. Prodr. **16**(2)**:** 558. 1868.

**Reseda undulata* Houtt. Nat. Hist. II. 8: 728. 1777.

Houttuyn's binomial was probably an inadvertently published one, a *lapsus calami* for *R. undata* Linn. The Linnaean species is sometimes reduced to *R. alba* Linn. Sp. Pl. 449. 1753.

CRASSULACEAE

Cotyledon Linnaeus

Cotyledon Umbilicus Linn. Sp. Pl. 429. 1753.

Cotyledon Umbilicus Veneris* Houtt. Nat. Hist. II. **5: 119. 1775; Christm. Pflanzensyst. **3:** 600. 1778.

Houttuyn and Christmann are the only authors that I have noted using the specific name *Umbilicus Veneris;* it is an exact synonym of *C. Umbilicus* Linn., and the references are to the latter.

SAXIFRAGACEAE

Saxifraga Linnaeus

Saxifraga ajugifolia Linn. Cent. I. Pl. 11. 1755 (*ajugaefolia*); Amoen. Acad. **4:** 271. 1759; Houtt. Nat. Hist. II. **8:** 558. 1777; Engl. & Irmsch. Pflanzenr. **67(IV.117):** 315. 1916.

Saxifraga ajugoides* Christm. Pflanzensyst. **6: 531. 1780.

Christmann's publication of the specific name *ajugoides* was doubtless due to an error in transcription, *ajugifolia* being intended.

ROSACEAE

Cliffortia Linnaeus

Cliffortia strobilifera Murr. Syst. Veg. ed. 13, 749. 1774; Houtt. Nat. Hist. II. **6:** 381. 1776; Harv. Fl. Cap. **2:** 300. 1861–62.

Cliffortia conifera* Christm. Pflanzensyst. **4: 621. 1779.

There is no indication that *C. conifera* Christm. was a new name. It is suspected that it was merely a *lapsus calami* on Christmann's part, who inadvertently wrote "*conifera*" in place of *strobilifera*.

Kerria de Candolle

Kerria japonica (Linn.) DC. Trans. Linn. Soc. **12:** 157. 1817.

Rubus japonicus Linn. Mant. **2:** 245. 1771.

Corchorus japonicus* Houtt. Nat. Hist. II. **9: 146. *t. 54. f. 2.* 1778; Thunb. Fl. Jap. 227. 1784.

Houttuyn published *Corchorus japonicus* six years before Thunberg's binomial appeared; Christmann and Panzer did not recognize it.

LEGUMINOSAE

Acacia Linnaeus

Acacia Senegal (Linn.) Willd. Sp. Pl. **4:** 1077. 1805.

Mimosa Senegal Linn. Sp. Pl. 521. 1753; Christm. Pflanzensyst. **4**: 696. 1779.

Mimosa senegalensis* Houtt. Nat. Hist. II. **3: 614. 1774.

Houttuyn's new binomial, not indicated as such, may have been published inadvertently or deliberately. In any case it antedates *Mimosa senegalensis* Forsk. Fl. Aeg.-Arab. 176. 1775 by one year.

Alysicarpus Necker

Alysicarpus vaginalis (Linn.) DC. Prodr. **2:** 353. 1825; Prain ex King, Jour. As. Soc. Bengal **66**(2): 132. 1927.

Hedysarum vaginale Linn. Sp. Pl. 746. 1753.

Lotus monophyllus* Houtt. Nat. Hist. II. **10: 314. *t. 65. f. 4.* 1779, Panzer, Pflanzensyst. **8**: 759. *t. 65. f. 4.* 1782, *in nota.*

Houttuyn's specimens were from the East Indies. He did not indicate his binomial as a new one and provided no Latin diagnosis for the species. His cursory description and excellent illustration clearly represent *Alysicarpus vaginalis* (Linn.) DC., a form, as Prain has pointed out, that differs from *A. nummularifolius* auct. (non *Hedysarum nummularifolium* Linn.) by its erect habit and lax racemes. The differences are further discussed by me, Philip. Jour. Sci. **5:** Bot. 92. 1910, where *Hedysarum nummularifolium* Linn. was interpreted from Petiver's illustration as representing *A. nummularifolius* (Linn.) DC. However, the *Hedysarum, Fl. Zeyl. no. 288,* of which Linnaeus had seen a specimen, is an *Indigofera, I. nummularifolia* (Linn.) Livera in Alston, Handb. Fl. Ceyl. **6:** Suppl. 72. 1931 (*Indigofera echinata* Willd. Sp. Pl. **3:** 1222. 1803), and although Linnaeus manifestly took his specific name from the Petiver reference, *Onobrychis maderaspat. nummulariae folio* Petiver, Gaz. 41. *t. 26. f. 4.* 1702–04, he saw no actual specimen of this. It seems logical to interpret the species from the "Flora Zeylanica" reference, for this was based on a still extant specimen which Linnaeus saw and described. In my earlier somewhat extensive discussion of this species, Philip. Jour. Sci. **5:** Bot. 92. 1910, I interpreted *Alysicarpus nummularifolius* (Linn.) DC. as typified by the Petiver reference, excluding *Fl. Zeyl. 288.*

Aspalathus Linnaeus

***Aspalathus pedunculata** Houtt. Nat. Hist. II. **5:** 475. *t. 28. f. 2.* 1775; Christm. Pflanzensyst. **4:** 220. *t. 28. f. 2.* 1779.

? *Aspalathus divaricata* Thunb. Prodr. Pl. Cap. 128. 1800; Harv. Fl. Cap. **2:** 138. 1861.

Houttuyn's species was based on material from South Africa. The binomial is not indicated as new, neither is there any Latin diagnosis. It is, however, much earlier than *A. pedunculata* L'Hér. Sert. Angl. 13. *t. 26.* 1788, Bot. Mag. **10:** *t. 344.* 1796, Harv. Fl. Cap. **2:** 140. 1861, which should be replaced by *A. squamosa* Thunb. Dr. R. H. Compton states that certain identification from Houttuyn's description and illustration is difficult, but that very likely it is a poor representation of *Aspalathus divaricata* Thunb. Prodr. Pl. Cap. 128. 1800; Harvey, Fl. Cap. **2:** 138. 1861. If this suggested reduction be correct, Thunberg's specific name would be replaced by Houttuyn's.

Cynometra Linnaeus

Cynometra ramiflora Linn. Sp. Pl. 382. 1753.

Limonia diphylla* Houtt. Nat. Hist. II. **2: 440. *t. 9. f. 2.* 1774; Christm. Pflanzensyst. **1:** 615. *t. 9. f. 2.* 1777; M. Roem. Fam. Nat. Reg. Veg. Syn. Monogr. **1:** 39. 1846 (Syn. Hesper. 39).

Houttuyn's figure, as to the leaves, represents the characteristic form of *Cynometra cauliflora* Linn. with a single pair of leaflets, the one illustrated by Rumphius, Herb. Amb. **1:** 167. *t. 63,* as *Cynomorium silvestre;* this form was included by Linnaeus in his original concept of the species but the Linnaean type should probably be interpreted as the Ceylon form. I do not recognize the solitary, long-pedicelled, conspicuously bracteate flower which Houttuyn's artist represents as *attached* to the tip of the leafy branch; it certainly does not belong with the leaf specimen. Houttuyn gives the Javanese name of his plant as *crandang;* but this local name seems properly to belong with *Dialium Indum* Linn., a totally different species from the one that Houttuyn illustrated. *Limonia diphylla* M. Roem. was published independently, the entire description reading "Folia binata (conjugata v. bifoliolata). In Java. Fructus magnitudine ovi columbini." Its basis was probably Houttuyn's or Christmann's *Limonia diphylla* for Houttuyn says regarding the fruit "niet grooter dan een Duiven-Ey."

Desmodium Desvaux

Desmodium motorium (Houtt.) comb. nov.

Hedysarum motorium* Houtt. Nat. Hist. II. **10: 246. 1779; Panzer, Pflanzensyst. **8**: 666. 1782, *in nota*.
Hedysarum gyrans Linn. f. Suppl. 332. 1781.
Desmodium gyrans DC. Prodr. **2**: 326. 1825.
Codariocalyx gyrans Hassk. Flora **25**(2): Beibl. **2**: 49. 1842; Schindl. Repert. Sp. Nov. **20**: 281. 1924.

Houttuyn's description was based on specimens grown at Leiden, shown to him by Van Royen in September 1778. His specific name was selected in reference to the peculiar motion of the small lateral leaflets, for the same reason that Linnaeus proposed the descriptive name *gyrans* two years later. The latter's description was based on material grown at Upsala from seeds sent by Forster in 1778. Panzer saw the species in cultivation in the Vienna botanical garden in 1777. Doubtless all of the specimens grown in European botanical gardens in 1777–81 were derived from seeds from one single source.

Lathyrus Linnaeus

Lathyrus japonicus Willd. Sp. Pl. 3. 1092. 1803; Fernald, Rhodora **34**: 178. 1932.

Pisum maritimum Linn. Sp. Pl. 727. 1753, non *Lathyrus maritimus* Bigel.
Lathyrus pisiformis sensu Houtt. Nat. Hist. II. **10**: 197. *t. 65. f. 1.* 1779; Panzer, Pflanzensyst. **8**: 608. *t. 65. f. 1.* 1782; non Linn.

The nomenclature of this common and widely distributed strand plant has recently been discussed by Fernald.* Willdenow's binomial was based on Houttuyn's description and illustration, his reference, however, being to the "Pflanzensystem" rather than to the "Natuurlyke historie." *Lathyrus pisiformis* Houtt. appears in literature as an independently published binomial, but Houttuyn merely attempted to interpret the Linnaean species, illustrating a Japanese plant that he thought represented it. It should be cited as *Lathyrus pisiformis* sensu Houtt. non Linn.

Lotononis de Candolle

Lotononis umbellata (Linn.) Benth. Hook. Lond. Jour. Bot. **2**: 602. 1843; Harv. Fl. Cap. **2**: 55. 1861; Dümmer, Trans. Roy. Soc. S. Afr. **3**: 299. 1913.

Ononis umbellata Linn. Mant. **2**: 266. 1771.
Lotus capensis* Houtt. Nat. Hist. II. **10: 311. *t. 65. f. 3.* 1779; Panzer, Pflanzensyst. **8**: 758. *t. 65. f. 3.* 1782, *in nota*.

Houttuyn failed to indicate *Lotus capensis* as a new species and gave

***Fernald, M. L.** Lathyrus japonicus versus L. maritimus. Rhodora **34**: 177-187. 1932.

no Latin diagnosis. The illustration represents *Lotononis umbellata* (Linn.) Benth., this identification being confirmed by Dr. R. H. Compton. *Ononis umbellata* Linn. is cited by Harvey as a doubtful synonym of *Lotononis umbellata* Benth., but Bentham was apparently correct in his interpretation of the Linnaean species. Mr. J. E. Dandy examined the specimen in the Linnaean herbarium, which is in flower and in young fruit, and reports that it is identical with specimens currently accepted as representing *Lotononis umbellata* (Linn.) Benth. On the sheet, which otherwise bears no information, Smith has added the letters "HB" = Herb. Banks. At the British Museum Mr. Dandy found a sheet in the Banksian herbarium that is an absolute match for the Linnaean specimen. This sheet bears the inscription "Prom. bon. spei. Desmaret." and was named by Solander (MSS.) as *Lotus capensis* Houtt. No information is available as to the dates of Desmaret's collection. Dümmer, who monographed the genus in 1913, cites six synonyms of *Lotononis umbellata* Benth. but does not include *Ononis umbellata* Linn. *Lotus capensis* Houtt. adds another synonym. *Lotononis* was originally published by de Candolle in 1825 as a section of *Ononis*. As a generic name (1836) it is antedated by *Amphinomia* DC. (1825) and *Leobordea* Delisle (1830), and if it is to be maintained it should be added to some future additional list of *nomina generica conservanda*.

Podalyria Lamarck

Podalyria calyptrata (Retz.) Willd. Sp. Pl. **2:** 504. 1799; Harv. Fl. Cap. **2:** 12. 1861.

Sophora calyptrata Retz. Obs. **1:** 36. 1779.
Sophora biflora Houtt. Nat. Hist. II. **5:** 8. *t. 24. f. 1.* 1775; Christm. Pflanzensyst. **3:** 501. *t. 24. f. 1.* 1778, non Linn.?

In spite of the fact that Houttuyn added the word *mihi* following his very short diagnosis, it is suspected that he intended to describe and illustrate *S. biflora* Linn. Syst. Nat. ed. 10, **2:** 1015. 1759. Willdenow placed Houttuyn's illustration under *P. calyptrata* Willd., his reference, however, being to Christmann's text. *Sophora biflora* Linn. seems to have originally been based on an actual specimen from Burman, doubtless the one still preserved in the Linnaean herbarium. Later, Sp. Pl. ed. 2, 534. 1762, he added various pre-Linnaean references, which resulted in Lamarck's statement, Encycl. **5:** 444. 1804, that Linnaeus had apparently placed several distinct species under *Sophora biflora* Linn.; and accordingly Lamarck based *Podalyria biflora* on Retzius' description of *Sophora biflora*, not on the original one of Linnaeus. A critical examination of Linnaeus's type seems to be called for here, for *Sophora*

biflora Linn. may actually be the same as *Sophora biflora* Houtt., in which case an adjustment in the synonymy would be necessary.

Psoralea Linnaeus

Psoralea ensifolia (Houtt.) comb. nov.

Anthyllis ensifolia* Houtt. Nat. Hist. II. **10: 120. *t. 62. f. 3.* 1779; Panzer, Pflanzensyst. **8**: 532. *t. 62. f. 3.* 1782.

Psoralea capitata Linn. f. Suppl. 339. 1781; Harvey, Fl. Cap. **2**: 151. 1861.

Psoralea multicaulis Jacq. Hort. Schönbr. **2**: *t. 230.* 1797.

Houttuyn's description was based on a specimen from South Africa, and was not indicated as new. Dr. R. H. Compton has identified it as representing *Psoralea capitata* Linn. f. The latter binomial must now be replaced by Houttuyn's earlier name.

Pueraria de Candolle

Pueraria Thunbergiana (Sieb. & Zucc.) Benth. Jour. Linn. Soc. Bot. **9**: 122. 1865; Rehder, Jour. Arnold Arb. **18**: 208. 1937.

Dolichos hirsutus Thunb. Trans. Linn. Soc. **2**: 339. 1784, non *Pueraria hirsuta* Kurz (1873).

Dolichos trilobus sensu Houtt. Nat. Hist. II. **10**: 153. *t. 64. f. 1.* 1779; Panzer, Pflanzensyst. **8**: 560. *t. 64. f. 1.* 1782; non Linn.

Pueraria triloba Makino in Iinuma, Somoku-Dzusetsu, ed. 3, **3**: 954. *t. 22.* 1912.

Houttuyn merely attempted to interpret the Linnaean species, but illustrated an entirely different Japanese plant. If one wishes to insist that *Dolichos trilobus* Houtt. was actually published as a new binomial, then it was invalid when published. It should be cited *Dolichos trilobus* sensu Houtt., non Linn.

Sutherlandia R. Brown

Sutherlandia frutescens (Linn.) R. Br. in Ait. Hort. Kew. ed. 2, **4**: 327. 1812; Harv. Fl. Cap. **2**: 212. 1861–62.

Colutea frutescens Linn. Sp. Pl. 723. 1753; Christm. Pflanzensyst. **4**: 260. 1779.

Colutea fruticosa* Houtt. Nat. Hist. II. **5: 517. 1775.

The publication of *Colutea fruticosa* Houtt. was probably due to a *lapsus calami* on his part, *C. frutescens* doubtless being intended.

Wisteria Nuttall

Wisteria floribunda (Willd.) DC. Prodr. **2**: 390. 1825; Rehd. & Wils. in Sargent, Pl. Wils. **2**: 510. 1916, *cum syn.* (*Wistaria*).

Glycine floribunda Willd. Sp. Pl. **3**: 1066. 1800.
Dolichos japonicus Spreng. Syst. Veg. **3**: 252. 1826.
Wisteria brachybotrys Sieb. & Zucc. Fl. Jap. **1**: 92. *t. 45.* 1839.
Dolichos polystachyos sensu Houtt. Nat. Hist. II. **10**: 156. *t. 64. f. 2.* 1779; Panzer, Pflanzensyst. **8**: 563. *t. 64. f. 2.* 1782 (*polystachios*); Thunb. Fl. Jap. 281. 1784 (*polystachyos*); non *Dolichos polystachios* Linn. = *Phaseolus polystachyus* B.S.P.

Houttuyn, Panzer, and Thunberg all attempted to interpret the Linnaean species and did not propose a new binomial. The plant Houttuyn and Thunberg had and which the former illustrated is *Wisteria floribunda* (Willd.) DC. Willdenow's and Sprengel's binomials were based wholly on the Thunberg and Houttuyn references.

Zornia Gmelin

Zornia myriadena Benth. in Mart. Fl. Bras. **15**(1): 85. 1859.

Ornithopus tetraphyllus Linn. Syst. Nat. ed. 10, **2**: 1168. 1759; Panzer, Pflanzensyst. **8**: 636. 1782.
Ornithopus quadriphyllus* Houtt. Nat. Hist. II. **10: 225. 1779.
Myriadenus tetraphyllus DC. Prodr. **2**: 316. 1825.
Zornia Sloanei Griseb. Fl. Brit. West Ind. 709. 1864.
Zornia tetraphylla Fawc. & Rendle, Fl. Jamaic. **2**: 31. 1920, non Michx.

Houttuyn's use of the hybrid specific name *quadriphyllus* was doubtless due to a *lapsus calami* on his part for there was no indication that he contemplated publishing a new name. The two forms, of course, have the same meaning, but the original Linnaean name is wholly Greek and Houttuyn's inadvertent substitute is half Latin and half Greek. Fawcett and Rendle's new name *Zornia tetraphylla* is invalidated by the much earlier *Z. tetraphylla* Michx. If this synonymy be correct, *Z. myriadena* Benth. in Mart. Fl. Bras. **15**(1): 85. 1859 is the oldest valid specific name. The Linnaean binomial was based on Sloane's Jamaica reference, exactly *Zornia Sloanei* Griseb. and *Myriadenus tetraphyllus* DC. In spite of the fact that Bentham says "excl. syn. Sloane" and "nec in Jamaica," his binomial I judge to have been merely a new one for *Myriadenus tetraphyllus*, the specific name being invalid in *Zornia*. Hence the binomial is to be interpreted by its name-bringing synonym; and this would be the Jamaican form in spite of the fact that Bentham excluded it. *Zornia tetraphylla* Michx. was based on *Z. bracteata* Gmel. (*Anonymos bracteata* Walt.), not on *Ornithopus tetraphyllus* Linn.

GERANIACEAE

Pelargonium L'Héritier

Pelargonium Chelidonium (Houtt.) DC. Prodr. **1**: 650. 1824; Knuth, Pflanzenr. **53(IV.129)**: 334. 1912.

Geranium Chelidonium Houtt. Nat. Hist. II. **10**: 8. *t. 61. f. 1.* 1779; Panzer, Pflanzensyst. **8**: 398. *t. 61. f. 1.* 1782.

Knuth cites the Houttuyn reference as "Lin. Pfl. Syst. X. 8 p. 398. tab. 61. f 1" thus confusing the Houttuyn with the Panzer citation. The "Index Kewensis" entry to the volume, page, and illustration is correct. Houttuyn's type was from South Africa.

Pelargonium sp.

Geranium hybridum Linn. Mant. **1**: 97. 1767; Houtt. Nat. Hist. II. **5**: 370. 1775.

Geranium spurium* Christm. Pflanzensyst. **4: Regist. [38]. 1779, descr. p. 124, *s.n.*

The Linnaean species is apparently not accounted for in Knuth's monograph of the Geraniaceae, Pflanzenr. **53(IV.129)**: 1–640. 1912. The overlooked *G. spurium* Christm. was based on *G. hybridum* Linn. for Christmann cites the Linnaean description, Murray, Syst. Veg. ed. 13, 511. 1774, as no. 3 "Unächter oder Bastard-Storchschnabel." The specific name *spurium* appears only in the Register p. [38] at the end of the volume.

LINACEAE

Linum Linnaeus

***Linum capense** Houtt. Nat. Hist. II. 8: Aanwyz. Plaat. [1]. *t. 46. f. 1.* 1777; Christm. Pflanzensyst. **6**: 263. *t. 46. f. 1.* 1780; sub *L. quadrifolium* Linn.

This is actually named in the description of the plate thus: "Een Plantje dat ik, wegens de Vrugtmaakende deelen, *Linum capense* noem." In the text II. 8: 286. 1777, a cursory description appears following *Linum quadrifolium* Linn. The illustration shows a simple, slender, leafless plant, natural size according to Houttuyn, bearing five flowers. It may be a form of *Linum thesioides* Bartl. Linn. **7**: 540. 1832, in which case Houttuyn's binomial would replace the latter, or it may be referable to *Linum quadrifolium* Linn. Christmann suggested the latter identification; for manifestly, as Christmann noted, Houttuyn had an old plant from which the leaves had fallen.

RUTACEAE

Calodendrum Thunberg

Calodendrum capense Thunb. Nov. Gen. 43. 1782, Prodr. Pl. Cap. 44, 1794, Fl. Cap. ed. Schultes, 197. 1823; Sonder, Fl. Cap. **1**: 371. 1859–60.

Dictamnus capensis Linn. f. Suppl. 232. 1781.

Pallasia Houtt. Nat. Hist. II. **4**: 382. *t. 22*. 1775.
Pallasia capensis Christm. Pflanzensyst. **3**: 318. 1778.

Houttuyn described and illustrated the genus *Pallasia* in 1775 but published no specific name; the latter was provided by Christmann in 1778. *Pallasia* Houttuyn is the oldest name for this genus but *Calodendrum* Thunb. is conserved. The "Index Kewensis" entry for the binomial is "[Christm. in] Houtt. Pfl. Syst. iii. 318;" it should be as cited in the synonymy above. The three binomials listed above were published independently of each other, all three authors curiously selecting the same specific name.

Citrus Linnaeus

Citrus aurantifolia (Christm.) Swingle, Jour. Washington Acad. Sci. **3**: 465. 1913; Merr. Interpret. Herb. Amb. 296. 1917.

Limonia aurantifolia* Christm. Pflanzensyst. **1: 618. 1777; M. Roem. Fam. Nat. Reg. Veg. Syn. Monogr. **1**: 39. 1846 (Syn. Hesper. 39).
Limonia acidissima* Houtt. Nat. Hist. II. **2: 444. 1774, non Linn.

Limonia acidissima Houtt. was clearly indicated by him as a new species, but his specific name was invalidated by *Limonia acidissima* Linn. To it he referred first *Limonellus* Rumph. Herb. Amb. **2**: 107. *t. 29*. 1741, followed by *Limo ferus, papeda, tuberosus,* and *aurarius* Rumph., not all of which represent the same species. Essentially it seems safe to interpret the species from the first reference which undoubtedly represents the common lime, usually known as *Citrus acida* Roxb. *Limonia aurantifolia* Christm. is a new name for *L. acidissima* Houtt. (non Linn.), but it is not indicated as such except by reference to Houttuyn's description, and hence has very generally been overlooked by botanists until Swingle called attention to it. The "Index Kewensis" reference is to *Limonia aurantifolia* M. Roem., but although Roemer does not cite the source of his binomial he undoubtedly took it from the Surinam reference of Christmann.

Feronia Correa

Feronia Limonia (Linn.) Swingle, Jour. Washington Acad. Sci. **4**: 328. 1914.

Schinus Limonia Linn. Sp. Pl. 389. 1753.
Limonia acidissima Linn. Sp. Pl. ed. 2, 554. 1762; Hook. f. Fl. Brit. Ind. **1**: 507. 1875.
Limonia pinnatifolia* Houtt. Nat. Hist. II. **2: 441. 1774; Christm. Pflanzensyst. **1**: 616. 1777.

The form Houttuyn described is clearly the Linnaean species; it was not proposed as a new species, nor is there any indication that the specific name was a new one, or any explanation of the change in the name.

Ruta Linnaeus

Ruta chalepensis Linn. Mant. **1:** 69. 1767; Pereira, Fl. Portugal 378. 1913.

Ruta ulyssiponensis* Houtt. Nat. Hist. II. **5: 55. 1775.

As Pereira distinguishes the two Portugal species, *R. chalepensis* Linn. and *R. montana* Linn., Houttuyn's species seems to be referable to the former. *Ruta ulyssiponensis* Houtt. was based on Loefling's observations on plants noted in the protestant cemetery in Lisbon, and Houttuyn separated it from *R. chalepensis* Linn. Christmann did not recognize it.

POLYGALACEAE

Polygala Linnaeus

Polygala empetrifolia Houtt. Nat. Hist. II. **5:** 433. *t. 28. f. 1.* 1775; Christm. Pflanzensyst. **4:** 181. *t. 28. f. 1.* 1779, *in nota.*

Polygala teretifolia Linn. f. Suppl. 316. 1781; Thunb. Prodr. Pl. Cap. 120. 1800; Harv. Fl. Cap. **1**: 83. 1859; Chodat, Mém. Soc. Phys. Hist. Nat. Genève **31** (2): 418. *t. 31. f. 24–25.* 1893.

Houttuyn's specific name is clearly the oldest available one for this characteristic South African species. He did not indicate the binomial as new and provided no Latin diagnosis. The entry and reduction in "Index Kewensis" is correct. Chodat does not mention Houttuyn's species in his "Monographia Polygalacearum" published in 1891–93.

Polygala japonica Houtt. Nat. Hist. II. **10:** 89. *t. 62. f. 1.* 1779; Panzer, Pflanzensyst. **8:** 488. *t. 62. f. 1.* 1782; Chodat, Mém. Soc. Phys. Hist. Nat. Genève **31** (2): 353. 1893.

Houttuyn did not indicate this as a new species, and provided no Latin diagnosis of it. While it is currently retained as specifically distinct from *P. sibirica* Linn., it is probably better placed as a synonym of the Linnaean species.

EUPHORBIACEAE

Euphorbia Linnaeus

***Euphorbia nodosa** Houtt. Nat. Hist. II. **8:** 748. *t. 52. f. 2.* 1777; Christm. Pflanzensyst. **7:** 52. *t. 52. f. 2.* 1781, *in nota.*

Euphorbia corrigioloides Boiss. Cent. Euphorb. 11. 1860; DC. Prodr. **15** (2): 32. 1862; Hook. f. Fl. Brit. Ind. **5**: 251. 1887.

The plant Houttuyn described and illustrated seems clearly to be a small-leaved form of *E. corrigioloides* Boiss. Houttuyn's overlooked binomial, having 83 years' priority, is accepted. *Euphorbia nodosa* N. E. Brown in Thiselton-Dyer, Fl. Trop. Afr. **6**(1): 548. 1911 is renamed **Euphorbia Nebrownii** nom. nov.

Leidesia Mueller-Arg.

Leidesia procumbens (Linn.) Prain, Ann. Bot. **27**: 400. 1913; Pax, Pflanzenr. **63(IV.147.VII)**: 284. *f. 44*. 1914.

Mercurialis procumbens Linn. Sp. Pl. 1036. 1753.
Croton ricinocarpos Linn. Sp. Pl. ed. 2, 1427. 1763; Christm. Pflanzensyst. **4**: 526. 1779.
Croton ricinokarpos* Houtt. Nat. Hist. II. **6: 260. 1776.
Leidesia capensis Muell.-Arg. in DC. Prodr. **15**(2): 793. 1866; Prain in Thiselton-Dyer, Fl. Cap. **5**(2): 463. 1920.

Although Prain in 1920 abandoned the specific name *procumbens* in favor of *capensis* he states that it is *Mercurialis procumbens* Linn. (1753). Clearly the oldest name should be retained.

CALLITRICHACEAE

Callitriche Linnaeus

Callitriche autumnalis Linn. Fl. Suec. ed. 2, 2. 1755; Christm. Pflanzensyst. **5**: 49. 1779.

Stellaria autumnalis* Houtt. Nat. Hist. II. **7: 66. 1777.

Houttuyn's hitherto overlooked binomial was manifestly due to an inadvertent error on his part in transcribing the generic name, *Callitriche* being the one intended. The error was corrected two years later by Christmann.

ANACARDIACEAE

Lannea A. Richard

Lannea coromandelica (Houtt.) comb. nov.

Dialium coromandelicum Houtt. Nat. Hist. II. **2**: 39. *t. 5. f. 2.* 1774; Christm. Pflanzensyst. **1**: 208. *t. 5. f. 2.* 1777, *in nota.*
Haberlia grandis Dennst. Schlüss. Hort. Malabar. 30. 1818.
Odina Wodier Roxb. Hort. Beng. 29. 1814, *nomen nudum,* Fl. Ind. ed. 2, **2**: 293. 1832; Hook. f. Fl. Brit. Ind. **2**: 29. 1876; Lecomte, Fl. Gén. Indo-Chine **2**: 34. 1908.
Calesium grande O. Ktze. Rev. Gen. Pl. 151. 1891.
Lannea grandis Engl. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 213. 1897.
Kalesiam Rheede, Hort. Malabar. **4**: 67. *t. 32.* 1683.

Houttuyn's species was not indicated by him as new and no Latin diagnosis was supplied. The description and the illustration, based on a Coromandel specimen from Burman, clearly represent no *Dialium*. I am indebted to Mr. C. E. C. Fischer of the Royal Botanic Gardens, Kew, who suggested to me the probability that *Lannea* was the genus represented. As he states what Houttuyn described in connection with the inflorescences as the "kleine rondagtige Blaadjes," are the young fruits.

Most of our material representing this common species, which extends from northwestern India to Ceylon and eastward to Indo-China and Hainan, has leaves with 7 to 9 leaflets, although some of the specimens have but five as Houttuyn describes and illustrates them. His illustration is, on the whole, better than is that of Rheede which is the whole basis of *Haberlia grandis* Dennst. Dr. Hochreutiner informs me that there is no specimen in Burman's herbarium at Geneva.

MALVACEAE

Malvastrum A. Gray

Malvastrum coromandelianum (Linn.) Garcke, Bonpl. **5:** 297. 1857.

Malva coromandeliana Linn. Sp. Pl. 687. 1753; Houtt. Nat. Hist. II. **10:** 54. 1779.

Malva coromandelica* Panzer, Pflanzensyst. **8: 448. 1782.

Malvastrum tricuspidatum A. Gray, Pl. Wright. 16. 1852.

The publication of the form *Malva coromandelica* was probably due to a *lapsus calami* on the part of Panzer.

STERCULIACEAE

Melochia Linnaeus

Melochia umbellata (Houtt.) Stapf, Kew Bull. **1913:** 317. 1913.

Visenia umbellata Houtt. Nat. Hist. II. **8:** 309. *t. 46. f. 3.* 1777; Christm. Pflanzensyst. **6:** 287. *t. 46. f. 3.* 1780.

Visenia umbellata Houtt. was proposed as a new genus and species, but there is no Latin diagnosis and no clear indication that they were new. The synonymy has been adjusted by Stapf, Kew Bull. **1913:** 317. 1913, this widely distributed Indo-Malaysian species being more commonly known as *Malachra indica* A. Gray and as *M. arborea* Blanco.

DILLENIACEAE

Tetracera Linnaeus

Tetracera indica (Houtt.) Merr. Interpret. Herb. Amb. 367. 1917, *in nota.*

Assa Houtt. Nat. Hist. II. **5:** 275. *t. 26. f. 1.* 1775.

Assa indica Houtt. ex Christm. Pflanzensyst. **4:** 40. *t. 26. f. 1.* 1779.

Assa exotica J. F. Gmel. Syst. Nat. **2:** 839. 1791.

Tetracera Assa DC. Syst. **1:** 402. 1818.

Houttuyn's material was from the Malaysian region. He proposed the new genus *Assa* but published no binomial for the species; a specific name was supplied by Christmann four years later, who, however, ascribes it to Houttuyn. The "Index Kewensis" entry is "Christm. &

Panz. in Houtt. Pflanz. Syst. iv. 40." All the synonyms cited above are based on Houttuyn's original description and illustration. It is *Ay-assa* Rumph. Herb. Amb. Auct. **7**: 20. 1755.

GUTTIFERAE

Calophyllum Linnaeus

Calophyllum sp. ?

Rheedia javanica Burm. f. Fl. Ind. 118. 1768; Christm. Pflanzensyst. **2**: 4. 1777.

Rheedia umbellata* Houtt. Nat. Hist. II. **3: 3. 1774.

Houttuyn's hitherto overlooked binomial was proposed as a new one for *Rheedia javanica* Burm. f. but was not so indicated by him. In my paper on Burman's species, Philip. Jour. Sci. **19**: 366. 1921, I placed it as *Garcinia* sp., but if Burman was correct in indicating his plant as representing Polyandria, Monogynia, this would be an impossible reduction; Dr. Hochreutiner informs me that there is no Burman specimen under *Garcinia* in the Delessert Herbarium at Geneva. *Calophyllum* would be a possibility because it has a 1-celled ovary and many stamens, but the description of the inflorescences "Pedunculi ex alis foliorum saepius terni ad medium quadrifidi" does not conform to *Calophyllum* characters nor does the term "umbellis pedunculatis" apply. Burman states "Foliatura and umbellis ab Americana differt, confer f. 4. t. 358. *Plukn. phyt.* quae ejusdem videtur generis," but Plukenet's *t. 358. f. 4.* is a rather crude illustration of some non-guttiferous plant with opposite *trifoliate*, rather coarsely toothed leaflets.

Hypericum Linnaeus

Hypericum aegypticum Linn. Sp. Pl. 784. 1753.

Hypericum aegyptium* Murr. Syst. Veg. ed. 13, 583. 1774; Houtt. Nat. Hist. II. **5: 572. 1775; Christm. Pflanzensyst. **4**: 313. 1779.

Hypericum aegyptiacum* Spreng. Syst. **3: 334. 1826, *in syn.*

Martia polyandra Spreng. op. cit. 333.

Houttuyn merely followed Murray in accepting the specific name *aegyptium* rather than the original form *aegypticum*.

Rheedia Linnaeus

Rheedia lateriflora Linn. Sp. Pl. 1193. 1753; Houtt. Nat. Hist. II. **3**: 2. 1774; Christm. Pflanzensyst. **2**: 4. 1777.

Rheedia americana* Christm. Pflanzensyst. **2: 4. 1777.

The publication of *Rheedia americana* by Christmann was doubtless due to an error on his part. The center head is "Amerikanische Rheedie.

Rheedia Americana" and this binomial appears in his index. *Rheedia lateriflora* Linn. appears as a lateral heading but is not indexed. The erroneous "Index Kewensis" entry "Rheedia americana, Hort. ex Steud. Nom. ed. II. ii. 446" was copied from Steudel, Nomencl. ed. 2, **2**: 446. 1841 "americana Hort. lateriflora." In ed. 1, 686. 1821 it appears as "R. americana Houtt." The author is Christmann.

FLACOURTIACEAE

Flacourtia L'Héritier

Flacourtia indica (Burm. f.) Merr. Interpret. Herb. Amb. 377. 1917, Enum. Philip. Fl. Pl. **3**: 112. 1923.

Gmelina indica Burm. f. Fl. Ind. 132. *t. 39. f. 5.* 1768; Houtt. Nat. Hist. II. **3**: 122. 1774.

Gmelina javanica* Christm. Pflanzensyst. **2: 134. 1777.

Christmann's binomial is not indicated as a new one and there is no explanation of the change in name. The material was from Java rather than from India. In any case it adds another synonym to the already ample list, including *Flacourtia sepiaria* Roxb. and *F. ramontchi* L'Hérit.

Samyda Linnaeus

Samyda serrulata Linn. Sp. Pl. ed. 2, 558. 1762; Houtt. Nat. Hist. II. **5**: 100. 1775; DC. Prodr. **2**: 47. 1825.

Samyda denticulata* Christm. Pflanzensyst. **3: 584. 1773.

Christmann's specific name was probably due to a *lapsus calami* on his part as the references he gives are to *S. serrulata* Linn. *Samyda denticulata* Poir. Dict. Sci. Nat. **47**: 159. 1816–30, was an independent publication, but is also a synonym of *S. serrulata* Linn.

LYTHRACEAE

Rotala Linnaeus

Rotala verticillaris Linn. Mant. **2**: 175. 1771; Houtt. Nat. Hist. II. **7**: 204. 1777; Koehne, Pflanzenr. **17(IV.216)**: 30. 1903.

Rotala verticillata* Christm. Pflanzensyst. **5: 195. 1779.

Christmann's perhaps inadvertent use of the form *verticillata* is forty years earlier than that by Roemer & Schultes, cited by Koehne.

COMBRETACEAE

Terminalia Linnaeus

Terminalia Chebula Retz. Obs. **5**: 31. 1789; Roxb. Pl. Coromandel **2**: 52. *t. 197.* 1798; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 446. 1878.

Myrobalanifera citrina Houtt. Nat. Hist. II. **2**: 486. *t. 10. f. 2.* 1774; Christm. Pflanzensyst. **1**: 667. *t. 10. f. 2.* 1777, *in nota;* non *Terminalia citrina* (Gaertn.) Roxb.

Myrobalanifera is a generic name apparently overlooked by all botanists since Houttuyn's and Christmann's time up to 1929 when it was listed, but not reduced, in the seventh supplement to "Index Kewensis." The species, clearly indicated by Houttuyn as new and provided with a brief Latin diagnosis, is manifestly a form of *Terminalia Chebula* Retz., and is not the same as *T. citrina* (Gaertn.) Roxb., the latter binomial dating from 1800. Although Houttuyn's binomial is older than any that appertain to this particular group, his specific name is invalid in *Terminalia* thus fortunately permitting the retention of the well known *Terminalia Chebula* Retz. for this particular species.

ARALIACEAE

Panax Linnaeus

Panax trifolius Linn. Sp. Pl. 1059. 1753; Houtt. Nat. Hist. II. **11**: 419. 1779; Britt. & Brown, Ill. Fl. N. States Canada **2**: 507. *f. 2631.* 1897, ed. 2, **2**: 619. *f. 3094.* 1913.

Panax trifoliatum* Panzer, Pflanzensyst. **10: 335. 1783.

Panzer's binomial was probably due to an error on his part in transcribing the name.

UMBELLIFERAE

Cnidium Cosson

Cnidium suffruticosum (Berg.) Cham. & Schlecht. Linnaea **1**: 387. 1826; Sonder, Fl. Cap. **2**: 552. 1861–62.

Conium suffruticosum Berg. Descr. Pl. Cap. 77. 1767.
Athamantha capensis Burm. f. Prodr. Fl. Cap. 7. 1768.
Conium rigens Linn. Mant. **2**: 352, 512. 1771; Houtt. Nat. Hist. II. **8**: 62. 1777.
Conium rigidum* Christm. Pflanzensyst. **6: 60. 1780.

Christmann's change of the specific name might have been deliberate but it is more apt to have been due to a *lapsus calami* on his part.

Ruthea Bolle

Ruthea gummifera (Linn.) Drude in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 179. 1898.

Bubon gummiferum Linn. Sp. Pl. 254. 1753.
Glia gummifera Sonder, Fl. Cap. **2**: 548. 1861–62.
Oenanthe capensis Houtt. Nat. Hist. II. **8**: 140. *t. 45. f. 2.* 1777; Christm. Pflanzensyst. **6**: 139. *t. 45. f. 2.* 1780.

Houttuyn's species is reduced in "Index Kewensis" to *Lichtensteinia pyrethrifolia* DC. which is cited by Sonder under both *Glia gummifera* Sonder and *Peucedanum ferulaceum* Thunb. Houttuyn's material was from the Cape of Good Hope region. Dr. R. H. Compton informs me that the illustration represents *Glia gummifera* Sonder.

Tordylium Linnaeus

Tordylium aegyptiacum (Linn.) Lam. Tabl. Encycl. **2:** 336. 1819.

Hasselquistia aegyptiaca Linn. Cent. I. Pl. 9. 1755, Amoen. Acad. **4:** 270. 1759, Sp. Pl. ed. 2, 355. 1762; Christm. Pflanzensyst. **6:** 33. 1780.

Hasselquistia orientalis* Linn. Mant. **2: 217. 1771; Houtt. Nat. Hist. II. 8: 31. 1777.

A detailed description of *Hasselquistia orientalis* Linn. appears in the "Mantissa Plantarum," with reference to *H. aegyptiaca* Linn. Sp. Pl. ed. 2, 1762. The new specific name may have been deliberately substituted, but the probability is that *orientalis* was inadvertently written in place of *aegyptiaca*. In any case *Hasselquistia orientalis* Linn. has very generally been overlooked and does not appear in "Index Kewensis."

Torilis Adanson

Torilis japonicus (Houtt.) DC. Prodr. **4:** 219. 1830; Buwalda, Blumea **2:** 169. 1937; Merr. Rhodora **40:** 291. 1938 (Contr. Gray Herb. **122:** 291).

Caucalis japonicus Houtt. Nat. Hist. II. **8:** 42. *t. 45. f. 1.* 1777; Christm. Pflanzensyst. **6:** 45. *t. 45. f. 1.* 1780.

Tordylium Anthriscus Linn. Sp. Pl. 240. 1753.

Caucalis Anthriscus Huds. Fl. Angl. 99, 1762, ed. 2, 114. 1778; Britt. & Br. Ill. Fl. N. States Canada **2:** 54. *f. 2634.* 1897.

Torilis Anthriscus Gmel. Fl. Bad. **1:** 613. 1805; Britt. & Br. Ill. Fl. N. States Canada ed. 2, **2:** 626. *f. 3106.* 1913; Thellung in Hegi, Ill. Fl. Mittel-Eur. **5**(*2*)**:** 1051. 1926; non Bernh. 1800, nec Gaertn. 1788.

Houttuyn's species was not indicated as new and no Latin diagnosis was provided. The "Index Kewensis" entry is correct except that the reference to the illustration was not included. De Candolle cites a Houttuyn specimen in the Delessert Herbarium at Geneva. Linnaeus described both *Tordylium Anthriscus* and *Scandix Anthriscus,* the same specific name for somewhat similar species causing some confusion. The *Tordylium* is the species here considered but the specific name is invalidated in *Torilis* by both Bernhardi's and Gaertner's use of the same epithet for a different species. *Scandix Anthriscus* Linn. has nothing to do with the species here considered, and is *Chaerefolium Anthriscus* (Linn.) Schinz & Thellung (*Torilis Anthriscus* Gaertn.); Hegi, Ill. Fl.

Mittel-Europa **5**(*2*): 1030. *f. 2385*. 1926. Under the International Code Houttuyn's specific name is the correct one for this common and very widely distributed Eurasian species which occurs as an introduced and naturalized one in North America.

ERICACEAE

Erica Linnaeus

Erica pulchella Houtt. Nat. Hist. II. **4**: 504. *t. 23. f. 1.* 1775; Christm. Pflanzensyst. **3**: 427. *t. 23. f. 1.* 1778; Guthrie & Bolus in Thiselton-Dyer, Fl. Cap. **4**(1): 208. 1905.

This is a well known species with several synonyms, amply described by Guthrie and Bolus, l. c. Houttuyn's type was from the Cape of Good Hope region.

***Erica splendida** Houtt. Nat. Hist. II. **4**: 519. *t. 23. f. 3.* 1775; Christm. Pflanzensyst. **3**: 444. *t. 23. f. 3.* 1778, *in nota.*

Houttuyn gave no Latin diagnosis and no indication that he proposed this as new except incidentally in the text. His specimen was from the Cape of Good Hope, and I have not been able to place it to my satisfaction among the 90 species known from that region. In facies, from Houttuyn's figure, it much resembles *Erica regerminans* as illustrated by Andrews (non Linn.) = *E. viridipurpurea* Linn., but the anthers as shown in Houttuyn's figure do not conform to those of the Linnaean species. The entry in Index Londinensis **3**: 83. 1930 to *Erica splendida* Mackay, Houttuyn, etc. is wrong, for *Erica splendida* Mackay ex Loud. Hort. Brit. 146. 1830, a *nomen nudum*, has nothing to do with *E. splendida* Houtt. Dr. R. H. Compton states that in spite of a considerable amount of effort he and his associates at Kirstenbosch have not been able to make a satisfactory identification of *Erica splendida* Houtt.

Rhododendron Linnaeus

Rhododendron viscosum (Linn.) Torr. Fl. North. & Mid. U. S. 424. 1824.

Azalea viscosa Linn. Sp. Pl. 151. 1753; Houtt. Nat. Hist. II. **4**: 188. 1775; Britt. & Brown, Ill. Fl. N. States Canada ed. *2*, **2**: 679. *f. 3219.* 1913.

Azalea viscida* Christm. Pflanzensyst. **3: 156. 1778.

Christmann's use of the specific name *viscida* was doubtless due to an error in transcription on his part.

PRIMULACEAE

Lysimachia Linnaeus

Lysimachia quadrifolia Linn. Sp. Pl. 147. 1753; Britt. & Br. Ill. Fl.

N. States Canada **2:** 588. *f. 2813*. 1897, ed. 2, **2:** 711. *f. 3289*. 1913.

Anagallis flava* Houtt. Nat. Hist. II. **7: 514. 1777.

Houttuyn's species was based wholly on *Anagallis caule singulari* . . . Gronov. Fl. Virgin. ed. 2, 26. 1762 which in turn was based on a Clayton specimen. Mr. J. E. Dandy states that the species is not ticked in the British Museum copy of Gronovius. The description appears in the first edition of Gronovius' work as *Galium caule singulari* . . . 16. 1739, corrected to *Anagallis* on page 138. It seems clearly to refer to *Lysimachia quadrifolia* Linn., a common species extending from New Brunswick southward to Georgia and Alabama. This most commonly has its leaves in whorls of four, but sometimes a specimen with as many as seven leaves in a whorl are found; Gronovius' description calls for a form with leaves in whorls of five or six. Christmann did not include Houttuyn's species.

OLEACEAE

Jasminum Linnaeus

Jasminum oblongum Burm. f. Fl. Ind. 6. *t. 3. f. 2*. 1768; Houtt. Nat. Hist. II. **4:** 23. 1775; Merr. Philip. Jour. Sci. **19:** 372. 1921.

Jasminum javanicum* Garcin. ex Burm. f. l. c. in syn; Christm. Pflanzensyst. **3: 14. 1778.

Houttuyn's short description is based wholly on Burman's original description and illustration. Christmann, however, abandoned Burman's specific name and accepted *J. javanicum* which had been cited by Burman as a synonym. The illustration clearly does not represent a *Jasminum*, but I am unable to suggest what genus may be represented.

GENTIANACEAE

Gentiana Linnaeus

Gentiana quinquefolia Linn. Sp. Pl. 230. 1753; Houtt. Nat. Hist. II. **7:** 827. 1777.

Gentiana quinqueflora* Christm. Pflanzensyst. **5: 864. 1779.

The publication of the specific name *quinqueflora* was manifestly due to a *lapsus calami* on Christmann's part.

Villarsia Ventenat

Villarsia capensis (Houtt.) comb. nov.

Renealmia capensis Houtt. Nat. Hist. II. **8:** 335. *t. 47. f. 1.* 1777; Christm. Pflanzensyst. II. **6:** 319. *t. 47. f. 1.* 1780.

Menyanthes ovata Linn. f. Suppl. 133. 1781.

Villarsia ovata Vent. Choix 9. *t. 9.* 1803; Hill & Prain in Thiselton-Dyer, Fl. Cap. **4:** 1119. 1909.

Houttuyn's new genus *Renealmia* is invalidated by *Renealmia* Linn. = *Tillandsia* Linn. of the Bromeliaceae; *Renealmia* Linn. f. (1781) is the generally accepted generic name for a zingiberaceous genus; *Renealmia* R. Br. (1810) is a synonym of the ericaceous *Libertia* Spreng. Houttuyn's specific name is clearly the oldest valid one for this South African species of *Villarsia*.

CONVOLVULACEAE

Merremia Dennstaedt

Merremia umbellata (Linn.) Hall. f. Bot. Jahrb. **16:** 552. 1892.

Convolvulus umbellatus Linn. Sp. Pl. 155. 1753.
Ipomoea cymōsa R. & S. Syst. **4:** 241. 1819.
Ipomoea pilosa* Houtt. Nat. Hist. II. **7: 573. *t. 42. f. 2.* 1777; Christm. Pflanzensyst. **5:** 562. *t. 42. f. 2.* 1779, *in nota.*

Houttuyn's specimen was from the East Indies. I interpret the species as the very common *Merremia umbellata* Hall. f. The flowers, as drawn, represent them as they appear on old, rather poorly prepared specimens, after the corollas have partly closed.

Ipomoea Linnaeus

Ipomoea biflora (Linn.) Pers. Syn. **1:** 183. 1805.

Convolvulus biflorus Linn. Sp. Pl. ed. 2, 1668. 1763.
Convolvulus bifidus* Christm. Pflanzensyst. **5: 529. 1779.
Aniseia biflora Choisy in DC. Prodr. **9:** 431. 1845.

Christmann through a *lapsus calami* wrote *bifidus* instead of *biflorus*, for Houttuyn correctly indicated the Linnaean binomial and Christmann's literature references are to *Convolvulus biflorus* Linn. The exact status of *Ipomoea biflora* (Linn.) Pers. is somewhat doubtful. Linnaeus says that the plant was from China; there is no specimen in the Linnaean herbarium. Hemsley says that it is probably the same as *I. Hardwickii* (Spreng.) Hemsl. (*Aniseia calycina* Choisy).

HYDROPHYLLACEAE

Hydrolea Linnaeus

Hydrolea zeylanica (L.) Vahl, Symb. **2:** 46. 1791; Brand, Pflanzenr. **59(IV.251):** 174. 1918.

Nama zeylanica Linn. Sp. Pl. 226. 1753.
Steris javana Linn. Mant. **1:** 54. 1767; Houtt. Nat. Hist. II. **7:** 800. 1777.
Steris javanica* Christm. Pflanzensyst. **5: 831. 1779.

Christmann's slight change in the specific name was doubtless due to an inadvertent error on his part in transcribing it.

BORAGINACEAE

Ehretia Linnaeus

Ehretia tinifolia Linn. Syst. Nat. ed. 10. **2:** 936. 1759; Christm. Pflanzensyst. **1:** 309. 1777.

Ehretia tenuifolia* Houtt. Nat. Hist. II. **2: 130. 1774.

Ehretia tenuifolia Houtt. was an inadvertently published binomial apparently due to an error on the part of Houttuyn in transcribing the Linnaean binomial.

Plagiobotrys Fischer & Meyer

Plagiobotrys orientalis (Linn.) Johnston, Contr. Gray Herb. **81:** 80. 1928; Hultén, Kungl. Svensk. Vetensk. Handl. III. 8(2): 78. 1930 (Fl. Kamtschatka).

Heliotropium orientale Linn. Sp. Pl. 131. 1753; Houtt. Nat. Hist. II. **7:** 419. 1777; Christm. Pflanzensyst. **5:** 402. 1779.

Lithospermum javanicum Spreng. Syst. Veg. **1:** 547. 1825.

Lithospermum plebejum Cham. & Schlecht. Linnaea **4:** 446. 1829.

This entry scarcely belongs in this paper for no new name was proposed by either Houttuyn or Christmann. The reason for including it is partly because of the "Index Kewensis" entry "orientale, *Linn. Sp. Pl.* 131; Houtt. *Handleid.* vii. 419 (sp. dub.). — Malaya." Steudel credited the binomial to Houttuyn. All Houttuyn did was to base a short cursory description on the original Linnaean diagnosis. Linnaeus merely said that his specimen was from "Asia" but Houttuyn said it was from Java — the Linnaean type is a Steller specimen from Kamtschatka. The species occurs in Kamtschatka and the Behring Sea region, and is to be eliminated from the Indo-Malaysian lists.

VERBENACEAE

Caryopteris Bunge

Caryopteris incana (Thunb.) Miq. Ann. Mus. Bot. Lugd.-Bat. **2:** 97. 1865 (Prol. Fl. Jap. 29).

Nepeta incana* Thunb. ex Houtt. Nat. Hist. II. **9: 307. *t. 56. f. 2.* 1778; Christm. Pflanzensyst. **7:** 429. *t. 56. f. 2.* 1781; Thunb. Fl. Jap. 244. 1784.

Houttuyn's specimen was received from Thunberg, the latter's binomial was published by both Houttuyn and by Christmann six and four years respectively before the "Flora Japonica" appeared. It seemed to be apparent that Thunberg's binomial was transmitted to Houttuyn with the specimens for Houttuyn states regarding it: "vondt de Heer Thunberg in Japan een Soort van dit Geslag, door hem *Grys* genaamd —"

Verbena Linnaeus

Verbena carolina Linn. Syst. ed. 10, 852. 1759; Houtt. Nat. Hist. II. **7:** 144. 1777; Schauer in DC. Prodr. **11:** 546. 1847 (*caroliniana*).

Verbena caroliniana* Murray, Syst. Veg. ed. 13, 62. 1774; Christm. Pflanzensyst. **5: 127. 1779; Willd. Sp. Pl. **1:** 119. 1797.

Christmann merely followed Murray in the use of the form *caroliniana* for the specific name, the latter antedating Willdenow's use of it by 23 years.

LABIATAE

Dracocephalum Linnaeus

Dracocephalum thymiflorum Linn. Sp. Pl. 596. 1753; Christm. Pflanzensyst. **7:** 551. 1781.

Dracocephalum thymifolium* Houtt. Nat. Hist. II. **9: 412. 1778.

Houttuyn's binomial was not intended as a new one but was apparently due to a *lapsus calami* on his part in transcribing the specific name.

Lavandula Linnaeus

Lavandula multifida Linn. Sp. Pl. 572. 1753; Houtt. Nat. Hist. II. **5:** 282. 1775; Benth. in DC. Prodr. **12:** 147. 1848.

Lavandula multipartita* Christm. Pflanzensyst. **4: 43. 1779.

Christmann's new specific name for the Mediterranean species was undoubtedly due an error in transcription on his part.

Leonurus Linnaeus

***Leonurus japonicus** Houtt. Nat. Hist. II. **9:** 366. *t. 57. f. 1.* 1778; Christm. Pflanzensyst. **7:** 501. *t. 57. f. 1.* 1781, *in nota.*

Leonurus macranthus Maxim. Prim. Fl. Amur. 476. 1859.
Leonurus japonicus Miq. Ann. Bot. Lugd.-Bat. **2:** 112. 1865.

I believe the form illustrated and described by Houttuyn, briefly noted but illustrated by Christmann, to be the same as *L. macranthus* Maxim. rather than the more widely distributed *L. sibiricus* Linn. *L. japonicus* Miq. was published independently of *L. japonicus* Houtt. The latter has been overlooked by all botanists since 1781, and curiously was not mentioned by Willdenow, Sp. Pl. **3:** 114–117. 1800, although he does include a reference to Houttuyn's treatment of *L. sibiricus* Linn. Houttuyn did not clearly indicate his binomial as a new one.

Salvia Linnaeus

Salvia Disermas Linn. Sp. Pl. ed. 2, 36. 1762; Skan in Thiselton-Dyer, Fl. Cap. **5:** 319. 1910.

Salvia Bisermas* Houtt. Nat. Hist. II. **7: 168. 1777.
Salvia Difermas* Christm. Pflanzensyst. **5: 155. 1779.

The variant spellings of the specific name by both Houttuyn and Christmann may undoubtedly be placed in the category of typographical errors, for the Linnaean *Salvia Disermas* was unquestionably intended.

Teucrium Linnaeus

***Teucrium japonicum** Houtt. Nat. Hist. II. **9**: 282. *t. 56. f. 1.* 1778; Christm. Pflanzensyst. **7**: Verzeich, Kupfertaf. [2] *t. 56. f. 1.* 1781; Willd. Sp. Pl. **3**: 23. 1800; Makino & Nemoto Fl. Jap. ed. 2, 1039. 1931.

Houttuyn definitely published this binomial as new but did not indicate it as such and provided no Latin diagnosis. Christmann ignored it, except for his reproduction of Houttuyn's illustration and the name "Das Teucrium Virginicum aus Japan" in the explanation of the plate. Willdenow did not consult Houttuyn's original work but cites as a synonym of *Teucrium japonicum* that he described as new "Teucrium virginicum e Japonia Houttuyn. *Lin Pfl. Syst.* 7, p. 401, t. 56, f. 1." which he took from Christmann's work, not from Houttuyn's. The species is not considered in Christmann's text, but on p. 401 only the true *Teucrium virginicum* is described.

Teucrium Pseudochamaepitys Linn. Sp. Pl. 562. 1753; Christm. Pflanzensyst. **7**: 391. 1781 (*Pseudochamaepithys*); Benth. in DC. Prodr. **12**: 580. 1848.

Teucrium Pseudopitys* Houtt. Nat. Hist. II. **9: 274. 1778.
Teucrium mauritanum Linn. op. cit. 563; Houtt. op. cit. 275.
**Teucrium mauritanicum* Christm. op. cit. 392.

Both new names were undoubtedly due to inadvertent errors in transcription, one by Houttuyn, the other by Christmann. Bentham reduced *T. mauritanum* Linn. to *T. Pseudochamaepitys* Linn.

Trichostema Gronovius

***Trichostema setaceum** Houtt. Nat. Hist. II. **9**: 428. 1778; Merr. Rhodora **40**: 292. 1938 (Contr. Gray Herb. **122**: 292).

Trichostema lineare Walt. Fl. Carol. 164. 1788.
Trichostema lineare Nutt. Gen. **2**: 39. 1818; Britt. & Brown, Ill. Fl. N. States Canada **3**: 78. *f. 3074.* 1898, ed. 2, **3**: 105. *f. 3574.* 1913.
Trichostema foliis setaceis Gronov. Fl. Virgin. ed. 2, 90. 1762.

Houttuyn's hitherto overlooked binomial was based wholly on *Trichostema foliis setaceis* Gronov. Fl. Virgin. ed. 2, 90. 1762, which in turn

was based on *Clayton 41*. Mr. J. E. Dandy of the British Museum kindly looked up this specimen for me, and states that *Clayton 41* was determined by Mr. C. A. Weatherby in 1935 to represent *Trichostema lineare* Nutt.; Nuttall described the species as new independently of Walter's early description of the same species under the same specific name. Mr. Dandy courteously supplied me with a photograph of the fragmentary specimen. He also states that there is another unnumbered Clayton specimen representing *Trichostema var. foliis semper angustioribus* Gronov. Fl. Virgin. 64. 1739; it appears in the last two lines in the *Trichostema* entry. This is also named *T. lineare* Nutt. Houttuyn did not indicate his binomial as a new one; Christmann and Panzer did not recognize it. The species occurs in sandy fields and in dry pine barrens from Connecticut to Georgia and Alabama, mostly near the coast.

SCROPHULARIACEAE

Bramia Lamarck

Bramia Monnieri (Linn.) Pennell, Proc. Acad. Nat. Sci. Phila. **71**: 243. 1919.

Lysimachia Monnieri Linn. Cent. II. Pl. 9. 1756.
Gratiola Monniera Linn. Amoen. Acad. **4**: 306. 1759.
Ruellia articulata* Houtt. Nat. Hist. II. **9: Aanwyz. Plaat. [4]. *t. 59. f. 3.* 1778.
Herpestis Monnieria H. B. K. Nov. Gen. Sp. Pl. **2**: 294. 1817.

This form, well illustrated by Houttuyn, is discussed in his text, **9**: 579, without a binomial, following *Ruellia repens* Linn. He clearly did not intend the illustration to represent the Linnaean species. Panzer also discusses it in his text, **8**: 173. *t. 59. f. 3.* 1782, following *Ruellia repens* Linn., and in his explanation of the plate lists it as "Ruellia repens, aus Ostindien."

Diascia Link & Otto

Diascia capensis (Linn.) Britten, Jour. Bot. **47**: 45. 1909.

Anagallis capensis Linn. Sp. Pl. 149. 1753.
Hemimeris bonae-spei Linn. Pl. Rar. Afr. 8. 1760, Amoen. Acad. **6**: 83. 1763.
Paederota bonae-spei Linn. Sp. Pl. ed. 2, 20. 1762; Houtt. Nat. Hist. II. **7**: 107. 1777.
Paederota capitis bonae-spei* Christm. Pflanzensyst. **5: 87. 1779.
Diascia nemophiloides Benth. in DC. Prodr. **10**: 257. 1846; Hiern in Thiselton-Dyer Fl. Cap. **4**(2): 148. 1904.

The synonymy is that given by Britten, *l. c.*, with the addition of Christmann's binomial which has hitherto been overlooked.

Erinus Linnaeus

Erinus alpinus Linn. Sp. Pl. 630. 1753; Houtt. Nat. Hist. II. **9**: 537. 1778; Hegi, Fl. Mittel-Europa **6**(1): 70. 1913.

Erinus europaeus* Panzer, Pflanzensyst. **8: 123. 1782.

Panzer gives no reason for changing the specific name. The references are clearly to *E. alpinus* Linn.

Hemimeris Linnaeus f.

Hemimeris racemosa (Houtt.) comb. nov.

Paederota racemosa Houtt. Nat. Hist. II. **7**: 110. *t. 38. f. 1.* 1777; Christm. Pflanzensyst. **5**: 89. *t. 38. f. 1.* 1779.

Hemimeris montana Linn. f. Suppl. 280. 1781; Hiern in Thiselton-Dyer, Fl. Cap. **4**(2): 165. 1904; Grant, Ann. Missouri Bot. Gard. **25**: 446. *f. 2.* 1938, *cum syn.*

This change of name is unavoidable for this common South African species, as Houttuyn's specific name antedates that of the younger Linnaeus by four years. Houttuyn did not indicate his species as new and supplied no Latin diagnosis of it. His description and illustration unquestionably appertain to the species described by the younger Linnaeus as *Hemimeris montana*. Dr. Grant provided a greatly amplified description of the species in her monographic treatment of *Hemimeris* in 1938.

Ilysanthes Rafinesque

Ilysanthes hyssopioides (Linn.) Benth. in DC. Prodr. **10**: 419. 1846; Hook. f. Fl. Brit. Ind. **4**: 283. 1884.

Gratiola hyssopioides Linn. Mant. **2**: 174. 1771.

Gratiola hyssopifolia* Houtt. Nat. Hist. II. **7: 123. 1777; Christm. Pflanzensyst. **5**: 104. 1779.

Morgania hyssopioides Spreng. Syst. **2**: 803. 1825.

Bonnaya hyssopioides Benth. in Wall. List no. 3867. 1830; Scroph. Ind. 34. 1835.

Gratiola hyssopifolia Houtt. was apparently not intended as a new name, but should rather be explained as a probable *lapsus calami* on his part, which Christmann failed to note and correct.

Pedicularis Linnaeus

***Pedicularis labradorica** Wirsing, Eclog. Bot. [2] *t. 10.* 1778; Panzer, Pflanzensyst. **8**: 39. *t. 57c.* 1782; Fernald, Rhodora **33**: 193. 1931; Merr. Rhodora **40**: 292. *t. 495.* 1938 (Contr. Gray Herb. **122**: 292. *t. 495*).

Pedicularis euphrasioides Stephan in Willd. Sp. Pl. **3**: 204. 1801, Britt.

& Brown, Ill. Fl. N. States Canada **3:** 185. *f. 3332.* 1898, ed. *2,* **3:** *220. f. 3847.* 1913.

Pedicularis euphrasioides Stephan in Willd. Sp. Pl. **3:** 204. 1801, incl. *β labradorica* (Houtt.) Willd. l. c.

This species was not included by Houttuyn in his treatment of *Pedicularis,* Nat. Hist. II. **9:** 468–478. 1778. The "Index Kewensis" reference is erroneous and incomplete "[Panzer, in] Houtt. Pflanzensyst. VIII. 39 = *euphrasioides.*" Fernald, in calling attention to the older name for *P. euphrasioides* Stephan gives the citation to "Houttuyn, Pflanzensyst.," an error in citation starting with Willdenow who gives it as "*Houttuyn Lin. Pfl. Syst.* 8. p. 39. *t. 57c.*" Panzer interpolated two extra plates in volume eight of the "Pflanzensystem" which he numbered 57b and 57c, the second one being an excellent illustration of the species under consideration copied from Wirsing's "Eclogae botanicae" (1778), which he merely cites as "Ecl. bot." and as "Eclogis botanicis" without giving its author's name. Suspecting that this was Wirsing's work, and that he had actually named and described the species, I asked Mr. J. E. Dandy to check the reference in the British Museum library, and he reports that Wirsing published a formal description of *Pedicularis labradorica;* this was overlooked in the compilation of "Index Kewensis." There is a copy of Wirsing's work in the New York Botanical Garden library. Wirsing's overlooked original description of *Pedicularis labradorica,* Eclog. Bot. [4]. *t. 10.* 1778 was reprinted by me, and his illustration was reproduced, Rhodora **40:** 293. *t. 495.* 1938 (Contr. Gray Herb. **122:** 293).

BIGNONIACEAE

Crescentia Linnaeus

Crescentia cucurbitina Linn. Mant. **2:** 250. 1771.

Crescentia cucurbitifera* Houtt. Nat. Hist. II. **3: 118. 1774; Christm. Pflanzensyst. **2:** 130. 1777.

It is suspected that the use of the specific name *cucurbitifera* by both Houttuyn and by Christmann was due to an error in transcription, rather than to a deliberate change in form by Houttuyn.

ACANTHACEAE

Acanthus Linnaeus

Acanthus arboreus Forsk. Fl. Aegypt.-Arab. 115. 1775; Houtt. Nat. Hist. II. **9:** 591. 1778.

Acanthus arborescens* Panzer, Pflanzensyst. **8: 185. 1782.

Panzer's change of the specific name was probably due to a *lapsus calami* on his part.

RUBIACEAE

Oldenlandia Linnaeus

Oldenlandia biflora Linn. Sp. Pl. 119. 1753; Trimen, Fl. Ceyl. **2:** 317. 1894.

Oldenlandia paniculata Linn. Sp. Pl. ed. 2, 1667. 1763.

Ludwigia (*Ludwighia*) *trifolia* Burm. f. Fl. Ind. 37. 1768; Merr. Philip. Jour. Sci. **19:** 388. 1921.

Ludwigia trifoliata* Houtt. Nat. Hist. II. **7: 341. 1777.

Houttuyn may not have intended to publish a new specific name although he actually did so in accepting Burman's species and adding an additional syllable in the specific name; Christmann does not recognize it. In my bibliographical study of Burman's new species* I was unable to place *Ludwigia trifolia* Burm. f. from the description alone, having to be content with the statement that no *Ludwigia* was represented. Through the courtesy of Dr. B. P. G. Hochreutiner, I have been privileged to examine Burman's type, preserved in the Delessert Herbarium at Geneva. The Javan specimen of *doedoek* labelled by Burman as *Ludwigia trifolia* proves to be the same as the common and widely distributed *Oldenlandia biflora* Linn. Advantage is taken of this opportunity to clarify the situation as to *Oldenlandia paniculata* Linn. (1763), the generally accepted binomial for this species. It was based wholly on an actual specimen in the Linnaean herbarium in spite of Trimen's statement (Fl. Ceyl. **2:** 317. 1894 sub *O. biflora* Linn.): "*O. paniculata*, L., is moreover quite doubtful; it is entirely based on a figure of Burman in Thes. Zeyl. t. 71. f. 2. which is apparently a *Mollugo* (certainly not an *Oldenlandia*.)" There is no literature reference in the original description of 1763; the Burman citation was added by Linnaeus in Syst. Nat. ed. 12, **2:** 126. 1767, which was doubtless the source on which Trimen's erroneous statement was based, but even here the first reference is to Sp. Pl. ed. 2, 1667. 1763.

Ophiorrhiza Linnaeus

Ophiorrhiza Mungos Linn. Sp. Pl. 150. 1753; Houtt. Nat. Hist. II. **7:** 518. 1777.

Ophiorrhiza ostindica* Christm. Pflanzensyst. **5: 503. 1779.

Christmann's peculiar hybrid specific name was apparently due to a *lapsus calami* on his part. Doubtless he intended to use the Linnaean binomial, but what he published was a hybrid translation of "Oostindische" from his common name "Oostindische Schlangenwurz."

***Merrill, E. D.** A review of the new species of plants proposed by N. L. Burman in his Flora Indica. Philip. Jour. Sci. **21:** 329-388. 1921.

Pavetta Linnaeus

Pavetta capensis (Houtt.) Bremek. Repert. Sp. Nov. **37**: 166. 1934, *cum syn.*

Crinita capensis Houtt. Nat. Hist. II. **7**: 362. *t. 40. f. 1.* 1777; Christm. Pflanzensyst. **5**: 357. *t. 40. f. 1.* 1779.

Pavetta Caffra Linn. f. Suppl. 121. 1781; Sonder, Fl. Cap. **3**: 19. 1864.

Pavetta corymbosa Houtt. ex. Thunb. Fl. Cap. 535. 1813, *in syn.*

This South African species is commonly known as *Pavetta Caffra* Linn. f. *Crinita* was described by Houttuyn as a new genus. The specimen in the Rijks Herbarium, Leiden, that Bremekamp cites is apparently not Houttuyn's type, but is a sheet labelled in the handwriting of Adrian van Royen (1705–1779) with a citation to Houttuyn's publication, fide Dr. van Oostroom *in lit.* There is also a sheet in Burman's herbarium at Geneva labelled *Crinita capensis* but it is not certain that this was a Houttuyn specimen. The reduction of *C. capensis* Houtt. to *Pavetta Caffra* Linn. f., as indicated in "Index Kewensis" is correct, but Houttuyn's specific name is the oldest one.

Compositae

Berkheya Ehrhart

Berkheya aculeata (Houtt.) comb. nov.

Basteria aculeata Houtt. Nat. Hist. II. **6**: 158. *t. 34. f. 2.* 1776; Christm. Pflanzensyst. **4**: 437. *t. 34. f. 2.* 1779 (without specific name).

**Basteria capensis* Houtt. op. cit. Aanwyz. Plaat. [3]; Christm. op. cit. Verzeich. Kupfertaf. [5].

Gorteria spinosa Linn. f. Suppl. 381. 1781.

Rohria obovata Thunb. Prodr. Pl. Cap. 140. 1800.

Berkheya obovata Willd. Sp. Pl. **3**: 2269. 1804; Harv. Fl. Cap. **3**: 508. 1864–65.

Berkheya spinosa Druce, Rep. Bot. Exch. Club Brit. Isles **1916**: 609. 1917.

Houttuyn's genus and species were not clearly indicated as new and there is no Latin diagnosis of either the genus or the species. His material was from South Africa. Willdenow's reduction of it to his *Berkheya obovata* is apparently correct but Houttuyn's name is the oldest valid one for the species. *Basteria* Houtt. is invalidated by the earlier *Basteria* Mill.

Berkheya angustifolia (Houtt.) comb. nov.

Atractylis angustifolia Houtt. Nat. Hist. II. **10**: 518. *t. 67. f. 1.* 1779; Panzer, Pflanzensyst. **9**: 203. *t. 67. f. 1.* 1783.

Rohria lanceolata Thunb. Prodr. Pl. Cap. 140. 1800.

Berkheya lanceolata Willd. Sp. Pl. **3**: 2270. 1804; Harv. Fl. Cap. **3**: 506. 1864–65.

Houttuyn's type was from the Cape of Good Hope region. He did not indicate the species as new, nor did he provide it with a Latin diagnosis. Willdenow reduced it to Thunberg's species, but Houttuyn's name is the oldest valid one. The "Index Kewensis" entry is correct except that the illustration is not cited.

Berkheya cruciata (Houtt.) Willd. Sp. Pl. **3:** 2276. 1804.

Gorteria cruciata Houtt. Nat. Hist. II. **11:** 21. *t. 70. f. 1.* 1779; Panzer, Pflanzensyst. **10:** 103. *t. 70. f. 1.* 1783.

Rohria cruciata Thunb. Act. Soc. Nat. Hafn. **3:** 104. 1793, Fl. Cap. 619. 1823.

Stobaea cruciata Harv. Fl. Cap. **3:** 498. 1864–65.

The three synonyms cited are all based on Houttuyn's original description. The "Index Kewensis" entry "Houtt. Nat. Hist. ii t. 70; ex DC Prodr. VI. 506" is incomplete and inaccurate.

Brachylaena R. Brown

Brachylaena elliptica (Thunb.) Less. Syn. Comp. 208. 1832; Harv. Fl. Cap. **3:** 116. 1864–65.

Tarchonanthus ellipticus Thunb. Prodr. Pl. Cap. 145. 1800.

Tarchonanthus camphoratus Houtt. ex DC. Prodr. **5:** 430. 1836, *in syn.;* non Linn.

The "Houttuyn" binomial is recorded merely because it appears in the literature, in synonymy. Houttuyn, Nat. Hist. II. **6:** 34. 1776, and Christmann, Pflanzensyst. **4:** 344. 1779, considered *Tarchonanthus camphoratus* Linn. The specimen cited by De Candolle "Tarch. camphoratus Houtt.! in H. Deless. v. s." is the *Brachylaena* and if the specimen came from Houttuyn's collection, for which there is no direct evidence, it merely means that Houttuyn made an erroneous identification. The actual specimen, which I have examined, is in the Burman herbarium (herb. Delessert).

Conyza Linnaeus

Conyza pusilla Houtt. Nat. Hist. II. **10:** 618. *t. 69. f. 1.* 1779; Panzer, Pflanzensyst. **9:** 319. *t. 69. f. 1.* 1783, *in nota;* Harv. Fl. Cap. **3:** 113. 1864–65.

This was accepted by Harvey in the "Flora Capensis," with a short description compiled from de Candolle Prodr. **5:** 388. 1836, but indicated as unknown to him. De Candolle states "ad Cap. Bonae-Spei. Frustulum tantum vidi sed meo sensu distinctissimum. (v. s. in H. Delessert.);" but Doctor Hochreutiner informs me that he was unable to locate the specimen. Houttuyn did not indicate his species as a new one. Dr.

R. H. Compton states that there is no material at Kirstenbosch representing Houttuyn's species, and that he cannot suggest any alternative name.

Cotula Linnaeus

Cotula turbinata Linn. Sp. Pl. 892. 1753.

Cotula pumila Houtt. Nat. Hist. II. **10**: *772. t. 69. f. 4.* 1779; Panzer, Pflanzensyst. **9**: 499. *t. 69. f. 4.* 1783, *in nota.*

Cenia turbinata Pers. Syn. **2**: 463. 1807; Harv. Fl. Cap. **3**: 185. 1864–65.

Houttuyn's species was not indicated as new, nor is there a Latin diagnosis. It was reduced to *Cenia turbinata* Pers. in "Index Kewensis," the entry there being to "Handleid.x.772" without citing the figure. De Candolle, Prodr. **6**: 83. 1837, placed it as a doubtful synonym of *Cenia subheterocarpa* Less. It seems to be the same as the Linnaean species. Houttuyn's type was from the Cape of Good Hope.

Dichrocephala L'Héritier

Dichrocephala latifolia (Lam.) DC. in Guill. Archiv. Bot. **2**: 518. 1833, Prodr. **5**: 372. 1836; Harv. Fl. Cap. **3**: 115. 1864.

Grangea latifolia Lam. ex Poir. Encycl. Suppl. **2**: 826. 1812; Lam. Tabl. Encycl. **3**: *276. t. 699. f. 1.* 1823.

Ethulia paniculata Houtt. Nat. Hist. II. **10**: 551. *t. 67. f. 2.* 1779; Panzer, Pflanzensyst. **9**: 235. *t. 67. f. 2.* 1783.

Houttuyn's species was clearly indicated by him as new, and has been reduced to *Hibbia integrifolia* Less. I consider it to represent *Dichrocephala latifolia* DC. rather than Lessing's species. Houttuyn's description is much earlier than Lamarck's, but curiously *Dichrocephala paniculata* Miq., which was independently published, is apparently identical with *Ethulia paniculata* Houtt. = *Dichrocephala latifolia* (Lam.) DC. Miquel's use of this binomial seems to preclude the acceptance of Houttuyn's earlier specific name in *Dichrocephala*.

Eupatorium Linnaeus

***Eupatorium rugosum** Houtt. Nat. Hist. II. **10**: 558. 1779; Merr. Rhodora **40**: 293. 1938 (Contr. Gray Herb. **122**: 293).

Ageratum altissimum Linn. Sp. Pl. 839. 1753, ed. 2, 1176. 1763.

Eupatorium urticaefolium Reichard, Syst. Pl. **3**: 719. 1780; Panzer, Pflanzensyst. **9**: 245. 1783; Britt. & Br. Illus. Fl. N. States Canada ed. 2, **3**: 361. *f. 4169.* 1913.

Eupatorium ageratoides Linn. f. Suppl. 355. 1781; Britt. & Br. Illus. Fl. N. States Canada **3**: 312. *f. 3629.* 1898.

Eupatorium altissimum Murr. Syst. Veg. ed. 13, 614. 1774, non *E. altissimum* Linn. (1753).

Eupatorium rugosum Houtt. is a validly published new name for *Ageratum altissimum* Linn., but it is not indicated by Houttuyn as new. The Linnaean binomial and the pre-Linnaean synonyms of Gronovius and Cornut are cited in the footnote. *Eupatorium ageratoides* Linn. f. (1781) was based on *Eupatorium altissimum* Murr. (1774) which in turn was based on *Ageratum altissimum* Linn. (1753). *Eupatorium urticaefolium* Reichard (1780) was also a new name for the same Linnaean species *Ageratum altissimum* Linn. = *Eupatorium altissimum* Murr. = *E. rugosum* Houtt. The three new names proposed in 1779, 1780, and 1781 were attempts on the part of Houttuyn, Reichard, and Linnaeus f. to provide a valid specific name for this particular species; of these that of Houttuyn is the oldest. *Eupatorium rugosum* H. B. K., an Ecuadorian species, needs a new name.

Helichrysum Vaillant

Helichrysum aureum (Houtt.) comb. nov.

Gnaphalium aureum Houtt. Nat. Hist. II. **10**: 590. *t. 67. f. 3.* 1779; Panzer, Pflanzensyst. **9**: 291. *t. 67. f. 3.* 1783.

Xeranthemum fulgidum Linn. f. Suppl. 365. 1781; Jacq. Ic. Rar. **1**: *t. 173.* 1781–86.

Elichrysum fulgidum Willd. Sp. Pl. **3**: 1904. 1804.

Helichrysum fulgidum DC. Prodr. **6**: 187. 1837; Harv. Fl. Cap. **3**: 232. 1864–65.

Houttuyn's species is clearly indicated by him as new. The reduction follows Willdenow and is apparently correct. The "Index Kewensis" entry for the binomial is correct. Houttuyn's specific name is accepted as the oldest one for this South African species.

Helianthus Linnaeus

Helianthus decapetalus Linn. Sp. Pl. 905. 1753; Houtt. Nat. Hist. II. **11**: 10. 1779; Britt. & Br. Ill. Fl. N. States Canada **3**: 427. *f, 3913.* 1898, ed. 2, **3**: 484. *f. 4480.* 1913.

Helianthus dodecapetalus* Panzer, Pflanzensyst. **9: 557. 1783.

Panzer's new specific name was apparently an unintentional one due to an error in transcription.

Hieracium Linnaeus

Hieracium murorum Linn. Sp. Pl. 802. 1753; Zahn, Pflanzenr. **75(IV.280)**: 287. 1921.

Hieracium Myophoron* Houtt. Nat. Hist. II. **10: 406. 1779.

This is the pre-Linnaean *Hieracium Myophorum* Rupp. Fl. Jen. ed. 2, 163. 1726, the *Hieracium murorum* Linn. var. Y Linn. Fl. Suec. ed. 2,

273, 1755, which, according to Linnaeus, is merely a gall infested form of *H. murorum* Linn.

Lactuca Linnaeus

Lactuca denticulata (Houtt.) Maxim. Bull. Acad. Sci. St. Pétersb. **19:** 529. 1874, Mél. Biol. **9:** 359. 1874; Hemsl. Jour. Linn. Soc. Bot. **23:** 480. 1888.

Prenanthes denticulata Houtt. Nat. Hist. II. **10:** 385. *t. 66. f. 4.* 1779; Panzer, Pflanzensyst. **9:** 50. *t. 66. f. 4.* 1783.

The status of Houttuyn's species, which is very common in eastern Asia, is well understood. It was clearly indicated by him as new. Hemsley lists numerous synonyms.

Lactuca indica Linn. Mant. **2:** 278. 1771; Merr. Bot. Mag. Tokyo **51:** 194. *t. 3.* 1937.

Prenanthes laciniata Houtt. Nat. Hist. II. **10:** 381. *t. 66. f. 1.* 1779; Panzer, Pflanzensyst. **9:** 46. *t. 66. f. 1.* 1783.

Lactuca laciniata Makino, Bot. Mag. Tokyo **17:** 88. 1903 (based on *Prenanthes laciniata* Houtt.), non Roth, 1821.

Lactuca brevirostris Champ. Hook. Jour. Bot. Kew Gard. Miscel. **4:** 237 1852.

Lactuca squarrosa Miq. Ann. Mus. Bot. Lugd.-Bat. **2:** 189. 1861.

The status of the Linnaean species, with its sixteen synonyms, is discussed by me in Bot. Mag. Tokyo **51:** 192–196. *t. 3.* 1937. The illustration is a photographic reproduction of the holotype of *Lactuca indica* Linn. Houttuyn's species is the form with pinnately lobed leaves (*Lactuca squarrosa* Miq. var. *laciniata* Miq.); he clearly indicated his species as a new one. Hara, Bot. Mag. Tokyo **52:** 122. 1938, retains *Lactuca squarrosa* Miq. (1866) as the name for the Japanese form, stating that he can divide the *Lactuca indica* group into two forms, one extending from southern Korea, Honshu and Yezo to the Riu Kiu Islands and Formosa, with a slender rostrum to the achenes 1 mm. or more long, the other, *Lactuca indica* Linn. (*L. brevirostris* Champ.) which is common in China, Manchuria, and Korea with a rostrum only 0.7 mm. long. The Linnaean type is the southern form which is abundant in southern China, extending southward to Indo-China, the Philippines, Sumatra and Java. Three-tenths of a mm. in the length of the beak to the achene seems to be a very slight character on which to base a specific distinction, for there are apparently no other distinguishing characters that hold.

Lactuca lanceolata (Houtt.) Mak. Bot. Mag. Tokyo **27:** 257. 1913, *cum. syn.*

Prenanthes lanceolata Houtt. Nat. Hist. II. **10**: 383, *t. 66. f. 2.* 1779; Panzer, Pflanzensyst. **9**: 49. *t. 66. f. 2.* 1783.
Prenanthes integra Thunb. Fl. Jap. 300. 1784.
Youngia integra A. Gray, Mem. Am. Acad. II. **6**: 396. 1859.
Crepis integra Miq. Ann. Mus. Bot. Lugd.-Bat. **2**: 190. 1866.

Houttuyn's species was clearly indicated as new, and was based on a Japanese specimen, and very likely on a duplicate of the collection on which Thunberg later based his *Prenanthes integra*.

Osteospermum Linnaeus

Osteospermum polygaloides Linn. Sp. Pl. 924. 1753; Harv. Fl. Cap. **3**: 444. 1864–65.

Calendula rosmarinifolia Houtt. Nat. Hist. II. **11**: 84. *t. 70. f. 2.* 1779; Panzer, Pflanzensyst. **10**: 23. *t. 70. f. 2.* 1783, *in nota.*

This is the conventional reduction of Houttuyn's species, and is clearly the correct disposition of it. *Osteospermum polygaloides* Linn. was based on three pre-Linnaean references, Royen 1740, Vaillant 1720, and Plukenet 1700, the first two of these being apparently typified by *Chrysanthemum fruticosum polygoni foliis* Pluk. Alm. Bot. Mant. 47. *t. 382. f. 2.* 1700–1705. Plukenet's figure, as compared with Houttuyn's, differs chiefly in the relatively much shorter and broader leaves. In any case, Houttuyn's excellent illustration clearly represents the same species as *Osteospermum polygaloides* Linn. as represented in the Linnaean herbarium by two specimens so named by Linnaeus, of which I have an excellent photograph courteously supplied by Mr. S. Savage. Mr. B. Daydon Jackson notes that these specimens are not included in the three enumerations of the herbarium discussed by him, and that they were either added after 1767, or by some accident were not recorded by Linnaeus. Mr. Savage states that Linnaeus' annotated copy of Sp. Pl. ed. 1 has no MS additions under this species, but that the similar copy of ed. 2 has extensive additions and some modifications of the original description, clearly indicating that Linnaeus had an actual specimen before him sometime after 1763. The species is actually typified by the Plukenet reference, not by the specimens named by Linnaeus. Dr. Tycho Norlindh, who has nearly completed a revision of *Osteospermum;* confirms this reduction of *Calendula rosmarinifolia* Houtt.

Senecio Linnaeus

Senecio varicosus Linn. f. Dec. Pl. Hort. Ups. 9. *t. 5.* 1762; Houtt. Nat. Hist. II. **10**: 647. 1779. DC. Prodr. **6**: 433. 1837.

Senecio verrucosus* Panzer, Pflanzensyst. **9: 356. 1783.

Panzer's specific name was apparently due to an error in transcription on his part. The Linnaean type, still preserved, is said by him to have come from Egypt, but the species is not mentioned in any special treatments of the Egyptian flora that I have seen.

Vernonia Linnaeus

Vernonia capensis (Houtt.) Druce, Rep. Exch. Club Brit. Isles **1916:** 651. 1917.

Erigeron capense Houtt. Nat. Hist. II. **10:** 629. *t. 69. f. 2.* 1779; Panzer, Pflanzensyst. **9:** 333. *t. 69. f. 2.* 1783.

Conyza pinifolia Lam. Encycl. **2:** 86. 1786.

Vernonia pinifolia Less. Linnaea **4:** 257. 1829; Harv. Fl. Cap. **3:** 51. 1864.

Houttuyn's species was clearly indicated by him as new. His specific name is the oldest valid one for this South African species.

Youngia Cassini

Youngia japonica (Linn.) Babc. & Stebb. Carnegie Inst. Publ. **484:** 94. *f. 28, 29.* 1937 (Gen. Youngia).

Prenanthes japonica Linn. Mant. **1:** 107. 1767; Houtt. Nat. Hist. II. **10:** 384. *t. 66. f. 3.* 1779; Panzer, Pflanzensyst. **9:** 49. 1783 (*iapanica*).

Prenanthes lyrata* Houtt. Nat. Hist. II. **10: Aanwyz. Plaat. [3]. 1779; Panzer, Pflanzensyst. **9:** 50. *t. 66. f. 3.* 1783, *in nota;* Thunb. Fl. Jap. 303. 1784.

Crepis japonica Benth. Fl. Hongk. 194. 1861.

In the text Houttuyn used the Linnaean binomial but in the description of the plate he used *Prenanthes lyrata,* thus publishing this binomial, doubtless the name under which he received his specimen from Thunberg. The form illustrated is var. *genuina* (Hochr.) Babc. & Stebb. op. cit. 95.

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